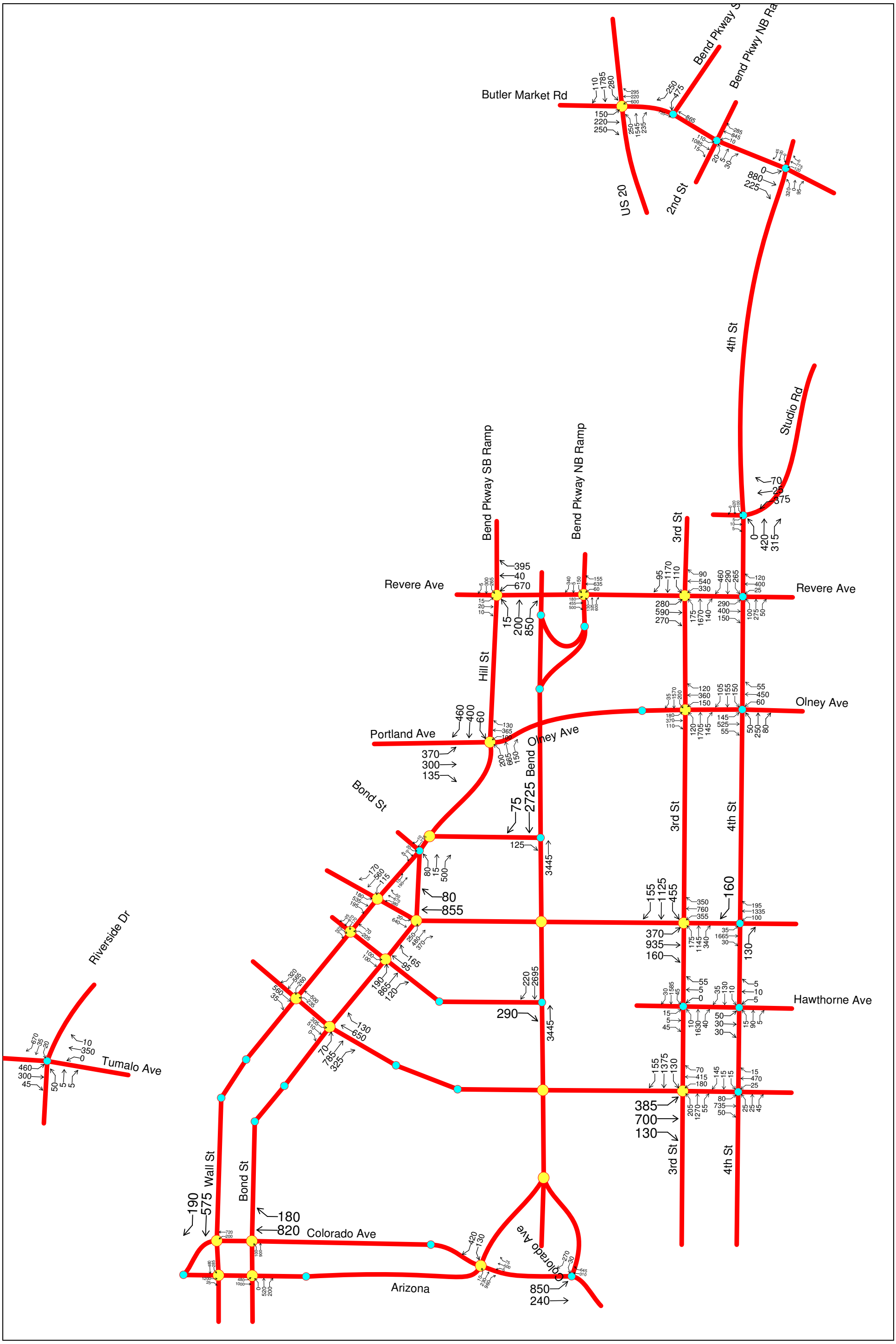
APPENDIX A

Future Traffic Volume Forecasts


Butler Market Rd
US 20
2nd St
Bend Pkway SB Ramp
Bend Pkway NB Ramp
Bend Pkway NB Ra
3rd St
4th St
Studio Rd
Revere Ave
Olney Ave
Portland Ave
Bond St
Hill St
Wall St
Riverside Dr
Tumalo Ave
Colorado Ave
Arizona
Hawthorne Ave

CAP Trip Reductions for Use of Alternative Modes

	Percentage of Future CAP Trips					
TAZ	Walk	Bicycle	Transit	Internal to Zone	Total	Total Walk/Bike
416	1	4	1	1	7	5
415	1	4	1	0	6	5
414,296,297	2	4	1	0	7	6
298	2	4	2	0	8	6
413,412	1	4	1	0	6	5
410,403	1	5	1	0	7	6
411,402	1	4	1	0	6	5
304,305	3	5	1	0	9	8
299	4	5	2	0	11	9
303	4	5	2	1	12	9
302	4	5	1	1	11	9
307	3	5	1	1	10	8
306,308,301	2	4	1	1	8	6
401	4	5	2	2	13	9
312	4	5	2	3	14	9
313,314,387	2	4	2	1	9	6
311,315,309,310,316	2	4	1	0	7	6
261,260,259,257	0	3	0	0	3	3
256,258,252	0	3	0	0	3	3
255,254,253	1	3	1	0	5	4

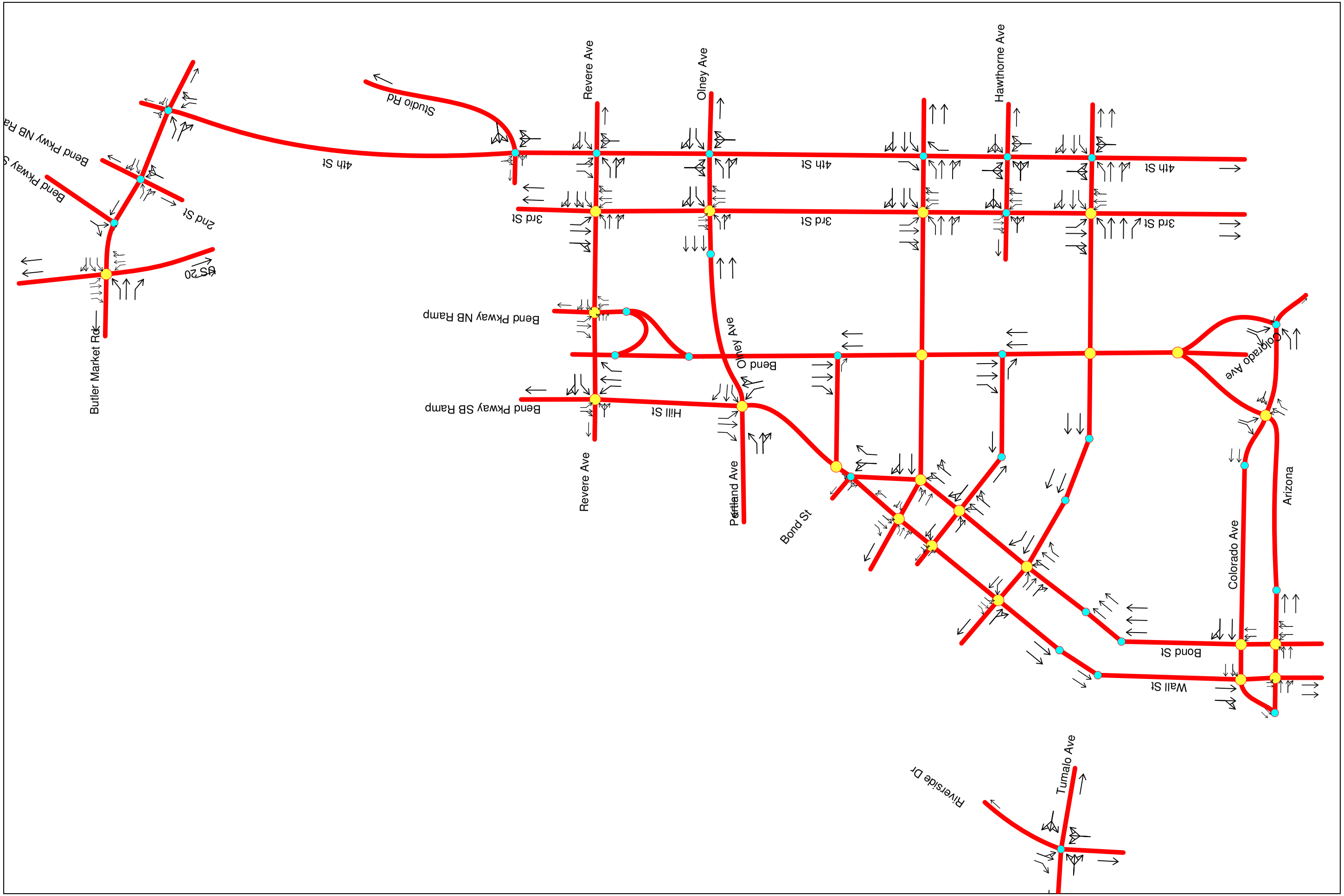
CAP Trip Distribution

Houshold Trip Distribution	North	South	East	West
Study Area			25%	
Within City	15%	20%	10%	10%
Regional	10%	5%	5%	0%

Employment Trip Distributio	North	South	East	West
Study Area			10%	
Within City	20%	10%	20%	5%
Regional	20%	10%	5%	0%

Bend Central Area Plan - 2030 Peak Hour **6/27/2007**

Existing Geometry



Bend Central Area Plan - 2030 Peak Hour
Mitigated Intersection Geometry

6/27/2007

APPENDIX B

2030 General Plan Intersection Traffic Operations Analysis Worksheets

101: Butler Market Rd & US 20

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00		1.00	0.95		1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.91		1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	3433	1703		1770	3469		1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	1863	1583	3433	1703		1770	3469		1770	3539	1583
Volume (vph)	150	220	250	600	220	295	250	1545	235	280	1785	110
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	163	239	272	652	239	321	272	1679	255	304	1940	120
RTOR Reduction (vph)	0	0	164	0	31	0	0	8	0	0	0	30
Lane Group Flow (vph)	163	239	108	652	529	0	272	1926	0	304	1940	90
Turn Type	Prot		Perm	Prot			Prot			Prot		Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases			8									2
Actuated Green, G (s)	11.0	20.0	20.0	29.0	38.0		18.5	69.0		20.5	71.0	71.0
Effective Green, g (s)	11.0	20.0	20.0	29.0	38.0		18.0	70.0		20.0	72.0	72.0
Actuated g/C Ratio	0.07	0.13	0.13	0.19	0.25		0.12	0.45		0.13	0.46	0.46
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		3.5	5.0		3.5	5.0	5.0
Lane Grp Cap (vph)	126	240	204	642	418		206	1567		228	1644	735
v/s Ratio Prot	c0.09	0.13		0.19	c0.31		0.15	c0.56		c0.17	0.55	
v/s Ratio Perm			0.07									0.06
v/c Ratio	1.29	1.00	0.53	1.02	1.27		1.32	1.23		1.33	1.18	0.12
Uniform Delay, d1	72.0	67.5	63.1	63.0	58.5		68.5	42.5		67.5	41.5	23.6
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	178.7	57.0	9.5	39.5	137.4		174.0	109.0		176.8	87.7	0.3
Delay (s)	250.7	124.5	72.7	102.5	195.9		242.5	151.5		244.3	129.2	23.9
Level of Service	F	F	E	F	F		F	F		F	F	C
Approach Delay (s)		134.1			145.6			162.7			138.6	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM Average Control Delay	147.7	HCM Level of Service	F
HCM Volume to Capacity ratio	1.26		
Actuated Cycle Length (s)	155.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	117.0%	ICU Level of Service	H
Analysis Period (min)	15		

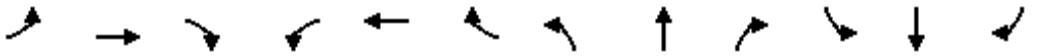
c Critical Lane Group

106: Revere Ave & Bend Pkway SB Ramp

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor		1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt		0.97		1.00	0.86		1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.98		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1777		1770	1609		1770	1863	1583	1770	1859	
Flt Permitted		0.98		0.95	1.00		0.41	1.00	1.00	0.55	1.00	
Satd. Flow (perm)		1777		1770	1609		771	1863	1583	1033	1859	
Volume (vph)	15	20	10	670	40	395	15	200	850	265	300	5
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	16	22	11	728	43	429	16	217	924	288	326	5
RTOR Reduction (vph)	0	10	0	0	248	0	0	0	182	0	1	0
Lane Group Flow (vph)	0	39	0	728	224	0	16	217	742	288	330	0
Turn Type	Split			Split			Perm		pm+ov	Perm		
Protected Phases	7	7		3	3			6	3		2	
Permitted Phases							6		6	2		
Actuated Green, G (s)		6.0		35.9	35.9		31.1	31.1	67.0	31.1	31.1	
Effective Green, g (s)		6.0		35.9	35.9		31.1	31.1	67.0	31.1	31.1	
Actuated g/C Ratio		0.07		0.42	0.42		0.37	0.37	0.79	0.37	0.37	
Clearance Time (s)		4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)		2.5		2.5	2.5		4.3	4.3	2.5	4.3	4.3	
Lane Grp Cap (vph)		125		748	680		282	682	1322	378	680	
v/s Ratio Prot		c0.02		c0.41	0.14			0.12	0.24		0.18	
v/s Ratio Perm							0.02		0.23	c0.28		
v/c Ratio		0.31		0.97	0.33		0.06	0.32	0.56	0.76	0.49	
Uniform Delay, d1		37.5		24.1	16.5		17.5	19.3	3.4	23.7	20.8	
Progression Factor		1.00		0.83	0.41		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		1.0		21.7	0.2		0.4	1.2	0.4	13.5	2.5	
Delay (s)		38.6		41.7	6.8		17.8	20.6	3.9	37.2	23.3	
Level of Service		D		D	A		B	C	A	D	C	
Approach Delay (s)		38.6			28.0			7.2			29.8	
Approach LOS		D			C			A			C	

Intersection Summary			
HCM Average Control Delay	20.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	85.6%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

107: Revere Ave & Bend Pkway NB Ramp



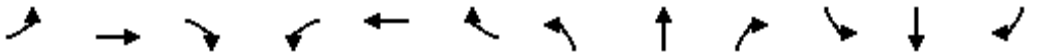
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0			4.0	4.0	4.0	4.0	4.0
Lane Util. Factor		0.95	1.00		0.95			1.00	1.00	1.00	1.00	1.00
Frt		1.00	0.85		0.97			1.00	0.85	1.00	1.00	0.85
Flt Protected		0.99	1.00		1.00			0.99	1.00	0.95	1.00	1.00
Satd. Flow (prot)		3490	1583		3431			1837	1583	1770	1863	1583
Flt Permitted		0.52	1.00		0.83			0.90	1.00	0.95	1.00	1.00
Satd. Flow (perm)		1853	1583		2854			1683	1583	1770	1863	1583
Volume (vph)	180	455	500	60	635	155	130	325	600	150	5	340
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	196	495	543	65	690	168	141	353	652	163	5	370
RTOR Reduction (vph)	0	0	316	0	22	0	0	0	136	0	0	61
Lane Group Flow (vph)	0	691	227	0	901	0	0	494	516	163	5	309
Turn Type	Perm		Perm	Perm			Perm		Perm	Prot		Perm
Protected Phases		2			6			8		7	4	
Permitted Phases	2		2	6			8		8			4
Actuated Green, G (s)		35.6	35.6		35.6			28.7	28.7	8.7	41.4	41.4
Effective Green, g (s)		35.6	35.6		35.6			28.7	28.7	8.7	41.4	41.4
Actuated g/C Ratio		0.42	0.42		0.42			0.34	0.34	0.10	0.49	0.49
Clearance Time (s)		4.0	4.0		4.0			4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)		2.5	2.5		2.5			2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)		776	663		1195			568	534	181	907	771
v/s Ratio Prot										c0.09	0.00	
v/s Ratio Perm		c0.37	0.14		0.32			0.29	c0.33			0.20
v/c Ratio		1.39dl	0.34		0.75			0.87	0.97	0.90	0.01	0.40
Uniform Delay, d1		22.9	16.8		21.0			26.4	27.7	37.7	11.2	13.9
Progression Factor		0.80	0.10		0.50			1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		11.6	1.1		0.2			13.0	29.9	39.3	0.0	0.1
Delay (s)		29.8	2.7		10.8			39.4	57.6	77.0	11.2	14.0
Level of Service		C	A		B			D	E	E	B	B
Approach Delay (s)		17.9			10.8			49.7			33.1	
Approach LOS		B			B			D			C	

Intersection Summary			
HCM Average Control Delay	27.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	88.0%	ICU Level of Service	E
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

c Critical Lane Group

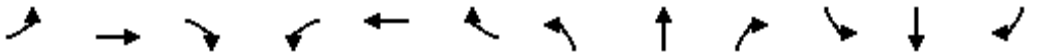
108: Revere Ave & 3rd St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		0.91	0.91		1.00	0.95		1.00	0.95	
Frt	1.00	0.95		1.00	0.98		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3373		1610	3315		1770	3498		1770	3499	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3373		1610	3315		1770	3498		1770	3499	
Volume (vph)	280	590	270	330	540	90	175	1670	140	110	1170	95
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	304	641	293	359	587	98	190	1815	152	120	1272	103
RTOR Reduction (vph)	0	31	0	0	7	0	0	4	0	0	4	0
Lane Group Flow (vph)	304	903	0	338	699	0	190	1963	0	120	1371	0
Turn Type	Split			Split			Prot			Prot		
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	37.0	37.0		31.0	31.0		18.0	76.0		10.0	68.0	
Effective Green, g (s)	37.0	37.0		31.0	31.0		18.0	76.0		10.0	68.0	
Actuated g/C Ratio	0.22	0.22		0.18	0.18		0.11	0.45		0.06	0.40	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	2.5	2.5		2.5	2.5		2.5	4.3		2.5	4.3	
Lane Grp Cap (vph)	385	734		294	605		187	1564		104	1400	
v/s Ratio Prot	0.17	c0.27		0.21	c0.21		0.11	c0.56		c0.07	0.39	
v/s Ratio Perm												
v/c Ratio	0.79	1.23		1.15	1.15		1.02	1.26		1.15	0.98	
Uniform Delay, d1	62.8	66.5		69.5	69.5		76.0	47.0		80.0	50.3	
Progression Factor	0.99	0.99		1.00	1.00		0.61	0.37		1.00	1.00	
Incremental Delay, d2	3.8	107.9		99.3	87.4		23.8	115.3		135.5	19.6	
Delay (s)	65.8	173.6		168.8	156.9		70.0	132.7		215.5	70.0	
Level of Service	E	F		F	F		E	F		F	E	
Approach Delay (s)		147.1			160.7			127.2			81.6	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM Average Control Delay	125.8	HCM Level of Service	F
HCM Volume to Capacity ratio	1.22		
Actuated Cycle Length (s)	170.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	113.3%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

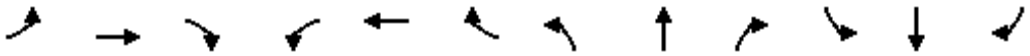
110: Portland Ave & Hill St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.95		1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	1776		1770	1863	1583	1770	1811		1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.24	1.00		0.11	1.00	1.00
Satd. Flow (perm)	1770	1776		1770	1863	1583	456	1811		212	1863	1583
Volume (vph)	370	300	135	100	365	130	200	665	150	60	400	460
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	402	326	147	109	397	141	217	723	163	65	435	500
RTOR Reduction (vph)	0	17	0	0	0	112	0	8	0	0	0	323
Lane Group Flow (vph)	402	456	0	109	397	29	217	878	0	65	435	177
Turn Type	Prot			Prot		Perm	pm+pt			pm+pt		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8	2			6		6
Actuated Green, G (s)	17.8	27.8		10.1	20.1	20.1	48.8	40.1		39.8	35.1	35.1
Effective Green, g (s)	18.0	27.8		10.3	20.1	20.1	48.8	40.1		39.8	35.1	35.1
Actuated g/C Ratio	0.18	0.28		0.10	0.20	0.20	0.49	0.41		0.40	0.35	0.35
Clearance Time (s)	4.2	4.0		4.2	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	2.5	2.5		2.5	2.5	2.5	3.0	4.2		2.5	4.2	4.2
Lane Grp Cap (vph)	322	499		184	379	322	354	734		159	661	562
v/s Ratio Prot	c0.23	0.26		0.06	c0.21		c0.06	c0.48		0.02	0.23	
v/s Ratio Perm						0.02	0.24			0.14		0.11
v/c Ratio	1.25	0.91		0.59	1.05	0.09	0.61	1.20		0.41	0.66	0.32
Uniform Delay, d1	40.5	34.4		42.3	39.4	32.0	17.2	29.4		24.6	26.8	23.2
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	135.1	21.3		4.2	59.2	0.1	3.1	101.1		1.2	2.7	0.5
Delay (s)	175.5	55.7		46.5	98.6	32.1	20.3	130.5		25.8	29.6	23.7
Level of Service	F	E		D	F	C	C	F		C	C	C
Approach Delay (s)		110.7			75.3			108.8			26.4	
Approach LOS		F			E			F			C	

Intersection Summary			
HCM Average Control Delay	80.6	HCM Level of Service	F
HCM Volume to Capacity ratio	1.15		
Actuated Cycle Length (s)	98.9	Sum of lost time (s)	16.0
Intersection Capacity Utilization	102.2%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

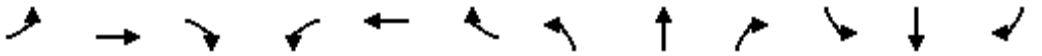
111: Olney Ave & 3rd St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.97		1.00	0.96		1.00	0.99		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1799		1770	1793		1770	3498		1770	3528	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1799		1770	1793		1770	3498		1770	3528	
Volume (vph)	180	370	110	150	360	120	120	1705	145	200	1570	35
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	196	402	120	163	391	130	130	1853	158	217	1707	38
RTOR Reduction (vph)	0	6	0	0	7	0	0	4	0	0	1	0
Lane Group Flow (vph)	196	516	0	163	514	0	130	2007	0	217	1744	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	15.5	43.0		13.5	41.0		12.5	80.0		17.5	85.0	
Effective Green, g (s)	15.0	43.0		13.0	41.0		12.0	81.0		17.0	86.0	
Actuated g/C Ratio	0.09	0.25		0.08	0.24		0.07	0.48		0.10	0.51	
Clearance Time (s)	3.5	4.0		3.5	4.0		3.5	5.0		3.5	5.0	
Vehicle Extension (s)	2.5	2.5		2.5	2.5		2.5	4.8		2.5	4.8	
Lane Grp Cap (vph)	156	455		135	432		125	1667		177	1785	
v/s Ratio Prot	c0.11	0.29		0.09	c0.29		0.07	c0.57		c0.12	c0.49	
v/s Ratio Perm												
v/c Ratio	1.26	1.13		1.21	1.19		1.04	1.20		1.23	0.98	
Uniform Delay, d1	77.5	63.5		78.5	64.5		79.0	44.5		76.5	41.0	
Progression Factor	1.00	1.00		1.00	1.00		0.70	0.56		0.80	0.40	
Incremental Delay, d2	156.9	84.3		143.7	106.5		35.2	92.4		106.4	3.0	
Delay (s)	234.4	147.8		222.2	171.0		90.4	117.3		167.5	19.2	
Level of Service	F	F		F	F		F	F		F	B	
Approach Delay (s)		171.5			183.2			115.6			35.6	
Approach LOS		F			F			F			D	

Intersection Summary			
HCM Average Control Delay	102.8	HCM Level of Service	F
HCM Volume to Capacity ratio	1.15		
Actuated Cycle Length (s)	170.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	112.4%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

115: Newport Ave & Wall St.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0						4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	1.00						0.95	1.00
Frt	1.00	0.96		1.00	0.99						1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00						0.99	1.00
Satd. Flow (prot)	1770	3397		1770	1843						3509	1583
Flt Permitted	0.95	1.00		0.95	1.00						0.99	1.00
Satd. Flow (perm)	1770	3397		1770	1843						3509	1583
Volume (vph)	180	535	195	380	670	50	0	0	0	115	560	170
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	196	582	212	413	728	54	0	0	0	125	609	185
RTOR Reduction (vph)	0	37	0	0	3	0	0	0	0	0	0	139
Lane Group Flow (vph)	196	757	0	413	779	0	0	0	0	0	734	46
Turn Type	Prot			Prot						Perm		Perm
Protected Phases	5	2		1	6						4	
Permitted Phases										4		4
Actuated Green, G (s)	14.0	35.0		28.0	49.0						25.0	25.0
Effective Green, g (s)	14.0	35.0		28.0	49.0						25.0	25.0
Actuated g/C Ratio	0.14	0.35		0.28	0.49						0.25	0.25
Clearance Time (s)	4.0	4.0		4.0	4.0						4.0	4.0
Lane Grp Cap (vph)	248	1189		496	903						877	396
v/s Ratio Prot	0.11	0.22		c0.23	c0.42							
v/s Ratio Perm											0.21	0.03
v/c Ratio	0.79	0.64		0.83	0.86						0.84	0.12
Uniform Delay, d1	41.6	27.2		33.8	22.5						35.6	29.0
Progression Factor	1.00	1.00		0.75	0.46						1.00	1.00
Incremental Delay, d2	22.2	2.6		11.2	7.9						9.3	0.6
Delay (s)	63.7	29.8		36.5	18.3						44.9	29.6
Level of Service	E	C		D	B						D	C
Approach Delay (s)		36.5			24.6			0.0			41.8	
Approach LOS		D			C			A			D	

Intersection Summary			
HCM Average Control Delay	33.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	77.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

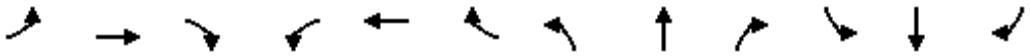
116: Newport Ave & Bond St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0				
Lane Util. Factor		0.95			0.95			0.95				
Frt		1.00			0.99			0.95				
Flt Protected		1.00			1.00			0.99				
Satd. Flow (prot)		3534			3494			3323				
Flt Permitted		0.88			1.00			0.99				
Satd. Flow (perm)		3132			3494			3323				
Volume (vph)	20	640	0	0	855	80	250	480	370	0	0	0
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	22	696	0	0	929	87	272	522	402	0	0	0
RTOR Reduction (vph)	0	0	0	0	7	0	0	61	0	0	0	0
Lane Group Flow (vph)	0	718	0	0	1009	0	0	1135	0	0	0	0
Turn Type	Perm						Perm					
Protected Phases		2			6			8				
Permitted Phases	2						8					
Actuated Green, G (s)		42.0			42.0			50.0				
Effective Green, g (s)		42.0			42.0			50.0				
Actuated g/C Ratio		0.42			0.42			0.50				
Clearance Time (s)		4.0			4.0			4.0				
Lane Grp Cap (vph)		1315			1467			1662				
v/s Ratio Prot					c0.29							
v/s Ratio Perm		0.23						0.34				
v/c Ratio		0.55			0.69			0.68				
Uniform Delay, d1		21.8			23.7			19.0				
Progression Factor		0.28			1.00			0.74				
Incremental Delay, d2		1.2			2.7			1.8				
Delay (s)		7.4			26.3			15.9				
Level of Service		A			C			B				
Approach Delay (s)		7.4			26.3			15.9			0.0	
Approach LOS		A			C			B			A	

Intersection Summary			
HCM Average Control Delay	17.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	71.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

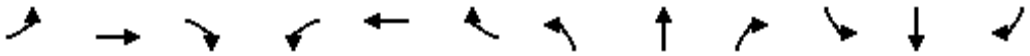
117: Greenwood Ave & 3rd St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.98		1.00	0.95		1.00	0.97		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3462		1770	3372		1770	3418		1770	3475	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3462		1770	3372		1770	3418		1770	3475	
Volume (vph)	370	935	160	355	760	350	175	1145	340	455	1125	155
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	402	1016	174	386	826	380	190	1245	370	495	1223	168
RTOR Reduction (vph)	0	8	0	0	31	0	0	16	0	0	7	0
Lane Group Flow (vph)	402	1182	0	386	1175	0	190	1599	0	495	1384	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases												
Actuated Green, G (s)	25.0	44.0		24.0	43.0		18.0	56.0		30.0	68.0	
Effective Green, g (s)	25.0	44.0		24.0	43.0		18.0	56.0		30.0	68.0	
Actuated g/C Ratio	0.15	0.26		0.14	0.25		0.11	0.33		0.18	0.40	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	2.5	2.5		2.5	2.5		2.5	4.3		2.5	4.3	
Lane Grp Cap (vph)	260	896		250	853		187	1126		312	1390	
v/s Ratio Prot	c0.23	0.34		0.22	c0.35		0.11	c0.47		c0.28	0.40	
v/s Ratio Perm												
v/c Ratio	1.55	1.32		1.54	1.38		1.02	1.42		1.59	1.00	
Uniform Delay, d1	72.5	63.0		73.0	63.5		76.0	57.0		70.0	50.9	
Progression Factor	1.00	1.00		1.00	1.00		0.68	0.96		0.80	1.06	
Incremental Delay, d2	264.0	151.4		263.8	177.1		45.3	191.1		265.3	6.4	
Delay (s)	336.5	214.4		336.8	240.6		96.8	245.7		321.0	60.2	
Level of Service	F	F		F	F		F	F		F	E	
Approach Delay (s)		245.3			263.9			230.1			128.6	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM Average Control Delay	213.6	HCM Level of Service	F
HCM Volume to Capacity ratio	1.42		
Actuated Cycle Length (s)	170.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	133.8%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

121: Oregon St & Wall St.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0						4.0	
Lane Util. Factor		1.00			1.00						0.95	
Frt		0.93			1.00						1.00	
Flt Protected		1.00			0.96						0.99	
Satd. Flow (prot)		1503			1553						3205	
Flt Permitted		1.00			0.75						0.99	
Satd. Flow (perm)		1503			1202						3205	
Volume (vph)	0	25	25	205	70	0	0	0	0	170	970	25
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	27	27	223	76	0	0	0	0	185	1054	27
RTOR Reduction (vph)	0	16	0	0	0	0	0	0	0	0	1	0
Lane Group Flow (vph)	0	38	0	0	299	0	0	0	0	0	1265	0
Parking (#/hr)	7	7	7	7	7	7				14	14	14
Turn Type				Perm						Perm		
Protected Phases		2			6						4	
Permitted Phases				6						4		
Actuated Green, G (s)		41.0			41.0						51.0	
Effective Green, g (s)		41.0			41.0						51.0	
Actuated g/C Ratio		0.41			0.41						0.51	
Clearance Time (s)		4.0			4.0						4.0	
Lane Grp Cap (vph)		616			493						1635	
v/s Ratio Prot		0.03										
v/s Ratio Perm					c0.25						0.39	
v/c Ratio		0.06			0.61						0.77	
Uniform Delay, d1		17.9			23.2						19.8	
Progression Factor		1.00			0.88						0.47	
Incremental Delay, d2		0.2			4.5						2.2	
Delay (s)		18.0			24.8						11.5	
Level of Service		B			C						B	
Approach Delay (s)		18.0			24.8			0.0			11.5	
Approach LOS		B			C			A			B	

Intersection Summary			
HCM Average Control Delay	14.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	60.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

122: Oregon St & Bond St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0				
Lane Util. Factor		1.00			1.00			0.95				
Frt		1.00			0.91			0.98				
Flt Protected		0.98			1.00			0.99				
Satd. Flow (prot)		1817			1703			3457				
Flt Permitted		0.63			1.00			0.99				
Satd. Flow (perm)		1174			1703			3457				
Volume (vph)	100	100	0	0	95	165	190	865	120	0	0	0
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	109	109	0	0	103	179	207	940	130	0	0	0
RTOR Reduction (vph)	0	0	0	0	63	0	0	9	0	0	0	0
Lane Group Flow (vph)	0	218	0	0	219	0	0	1268	0	0	0	0
Turn Type	Perm						Perm					
Protected Phases		2			6			8				
Permitted Phases	2						8					
Actuated Green, G (s)		37.4			37.4			54.6				
Effective Green, g (s)		37.4			37.4			54.6				
Actuated g/C Ratio		0.37			0.37			0.55				
Clearance Time (s)		4.0			4.0			4.0				
Lane Grp Cap (vph)		439			637			1888				
v/s Ratio Prot					0.13							
v/s Ratio Perm		c0.19						0.37				
v/c Ratio		0.50			0.34			0.67				
Uniform Delay, d1		24.1			22.5			16.3				
Progression Factor		1.60			1.00			0.16				
Incremental Delay, d2		2.9			1.5			1.0				
Delay (s)		41.4			24.0			3.5				
Level of Service		D			C			A				
Approach Delay (s)		41.4			24.0			3.5			0.0	
Approach LOS		D			C			A			A	

Intersection Summary			
HCM Average Control Delay	11.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	69.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

124: Franklin Ave & Wall St.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0						4.0	4.0
Lane Util. Factor		1.00		1.00	1.00						0.95	1.00
Frt		0.99		1.00	1.00						1.00	0.85
Flt Protected		1.00		0.95	1.00						0.98	1.00
Satd. Flow (prot)		1848		1770	1863						3484	1583
Flt Permitted		1.00		0.13	1.00						0.98	1.00
Satd. Flow (perm)		1848		249	1863						3484	1583
Volume (vph)	0	560	35	235	500	0	0	0	0	260	565	320
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	609	38	255	543	0	0	0	0	283	614	348
RTOR Reduction (vph)	0	2	0	0	0	0	0	0	0	0	0	237
Lane Group Flow (vph)	0	645	0	255	543	0	0	0	0	0	897	111
Turn Type				pm+pt						Perm		Perm
Protected Phases		8		7	4						6	
Permitted Phases				4						6		6
Actuated Green, G (s)		43.0		61.0	61.0						31.0	31.0
Effective Green, g (s)		43.0		61.0	61.0						31.0	31.0
Actuated g/C Ratio		0.43		0.61	0.61						0.31	0.31
Clearance Time (s)		4.0		4.0	4.0						4.0	4.0
Lane Grp Cap (vph)		795		365	1136						1080	491
v/s Ratio Prot		c0.35		c0.10	0.29							
v/s Ratio Perm				0.33							0.26	0.07
v/c Ratio		0.81		0.70	0.48						0.83	0.23
Uniform Delay, d1		24.9		17.0	10.7						32.1	25.6
Progression Factor		1.00		0.80	0.42						0.58	0.52
Incremental Delay, d2		8.8		5.1	0.7						5.1	0.7
Delay (s)		33.7		18.7	5.1						23.7	14.1
Level of Service		C		B	A						C	B
Approach Delay (s)		33.7			9.4			0.0			21.0	
Approach LOS		C			A			A			C	

Intersection Summary					
HCM Average Control Delay	20.6	HCM Level of Service		C	
HCM Volume to Capacity ratio	0.80				
Actuated Cycle Length (s)	100.0	Sum of lost time (s)		12.0	
Intersection Capacity Utilization	84.8%	ICU Level of Service		E	
Analysis Period (min)	15				

c Critical Lane Group

125: Franklin Ave & Bond St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0		4.0	4.0			
Lane Util. Factor	1.00	0.95			1.00	1.00		0.95	1.00			
Frt	1.00	1.00			1.00	0.85		1.00	0.85			
Flt Protected	0.95	1.00			1.00	1.00		1.00	1.00			
Satd. Flow (prot)	1770	3539			1863	1583		3525	1583			
Flt Permitted	0.09	1.00			1.00	1.00		1.00	1.00			
Satd. Flow (perm)	159	3539			1863	1583		3525	1583			
Volume (vph)	305	510	0	0	650	130	70	785	325	0	0	0
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	332	554	0	0	707	141	76	853	353	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	6	0	0	254	0	0	0
Lane Group Flow (vph)	332	554	0	0	707	135	0	929	99	0	0	0
Turn Type	pm+pt					custom	Perm		Perm			
Protected Phases	3	8			4			2				
Permitted Phases	8					8	2		2			
Actuated Green, G (s)	64.0	64.0			43.0	64.0		28.0	28.0			
Effective Green, g (s)	64.0	64.0			43.0	64.0		28.0	28.0			
Actuated g/C Ratio	0.64	0.64			0.43	0.64		0.28	0.28			
Clearance Time (s)	4.0	4.0			4.0	4.0		4.0	4.0			
Lane Grp Cap (vph)	376	2265			801	1013		987	443			
v/s Ratio Prot	c0.15	0.16			0.38							
v/s Ratio Perm	c0.42					0.09		0.26	0.06			
v/c Ratio	0.88	0.24			0.88	0.13		0.94	0.22			
Uniform Delay, d1	29.4	7.7			26.2	7.1		35.2	27.6			
Progression Factor	0.87	1.86			1.00	1.00		0.62	0.97			
Incremental Delay, d2	15.3	0.1			13.5	0.3		14.1	0.9			
Delay (s)	41.0	14.5			39.6	7.4		35.9	27.6			
Level of Service	D	B			D	A		D	C			
Approach Delay (s)		24.4			34.3			33.6			0.0	
Approach LOS		C			C			C			A	

Intersection Summary			
HCM Average Control Delay	31.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	84.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

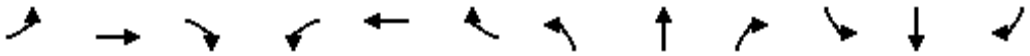
126: Franklin Ave & 3rd St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	0.98		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3463		1770	3517		1770	3486	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3463		1770	3517		1770	3486	
Volume (vph)	385	700	130	180	415	70	205	1270	55	130	1375	155
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	418	761	141	196	451	76	223	1380	60	141	1495	168
RTOR Reduction (vph)	0	0	82	0	8	0	0	2	0	0	5	0
Lane Group Flow (vph)	418	761	59	196	519	0	223	1438	0	141	1658	0
Turn Type	Prot		Perm	Prot			Prot			Prot		
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases			4									
Actuated Green, G (s)	37.0	41.0	41.0	19.0	23.0		20.0	77.0		17.0	74.0	
Effective Green, g (s)	37.0	41.0	41.0	19.0	23.0		20.0	77.0		17.0	74.0	
Actuated g/C Ratio	0.22	0.24	0.24	0.11	0.14		0.12	0.45		0.10	0.44	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Lane Grp Cap (vph)	385	854	382	198	469		208	1593		177	1517	
v/s Ratio Prot	c0.24	c0.22		0.11	c0.15		c0.13	0.41		0.08	c0.48	
v/s Ratio Perm			0.04									
v/c Ratio	1.09	0.89	0.15	0.99	1.11		1.07	0.90		0.80	1.09	
Uniform Delay, d1	66.5	62.3	50.8	75.4	73.5		75.0	43.0		74.8	48.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		0.62	0.40	
Incremental Delay, d2	70.8	13.5	0.9	61.4	74.0		82.8	8.8		3.5	43.0	
Delay (s)	137.3	75.9	51.7	136.8	147.5		157.8	51.8		49.6	62.0	
Level of Service	F	E	D	F	F		F	D		D	E	
Approach Delay (s)		92.7			144.6			66.0			61.1	
Approach LOS		F			F			E			E	

Intersection Summary			
HCM Average Control Delay	81.1	HCM Level of Service	F
HCM Volume to Capacity ratio	1.11		
Actuated Cycle Length (s)	170.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	102.7%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

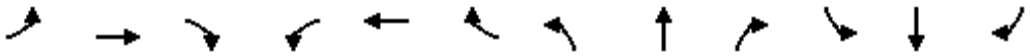
129: Colorado Ave & Wall St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0						4.0	
Lane Util. Factor					0.95						0.95	
Frt					1.00						0.96	
Flt Protected					0.99						1.00	
Satd. Flow (prot)					3282						3194	
Flt Permitted					0.99						1.00	
Satd. Flow (perm)					3282						3194	
Volume (vph)	0	0	0	200	720	0	0	0	0	0	575	190
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	217	783	0	0	0	0	0	625	207
RTOR Reduction (vph)	0	0	0	0	26	0	0	0	0	0	32	0
Lane Group Flow (vph)	0	0	0	0	974	0	0	0	0	0	800	0
Parking (#/hr)				5	5					5	5	
Turn Type				Perm								
Protected Phases					6						4	
Permitted Phases				6								
Actuated Green, G (s)					47.9						44.1	
Effective Green, g (s)					47.9						44.1	
Actuated g/C Ratio					0.48						0.44	
Clearance Time (s)					4.0						4.0	
Lane Grp Cap (vph)					1572						1409	
v/s Ratio Prot											c0.25	
v/s Ratio Perm					0.30							
v/c Ratio					0.62						0.57	
Uniform Delay, d1					19.3						20.8	
Progression Factor					0.21						1.43	
Incremental Delay, d2					1.2						1.0	
Delay (s)					5.3						30.7	
Level of Service					A						C	
Approach Delay (s)		0.0			5.3			0.0			30.7	
Approach LOS		A			A			A			C	

Intersection Summary			
HCM Average Control Delay	16.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	54.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

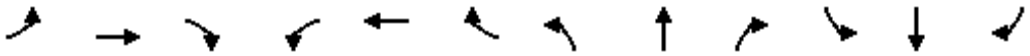
130: Colorado Ave & Bond St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0			4.0				
Lane Util. Factor					0.95			0.95				
Frt					0.97			1.00				
Flt Protected					1.00			1.00				
Satd. Flow (prot)					3185			3257				
Flt Permitted					1.00			1.00				
Satd. Flow (perm)					3185			3257				
Volume (vph)	0	0	0	0	820	180	100	900	0	0	0	0
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	891	196	109	978	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	19	0	0	9	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	1068	0	0	1078	0	0	0	0
Parking (#/hr)				10	10	10	10	10	10			
Turn Type							Perm					
Protected Phases					6			8				
Permitted Phases							8					
Actuated Green, G (s)					46.0			46.0				
Effective Green, g (s)					46.0			46.0				
Actuated g/C Ratio					0.46			0.46				
Clearance Time (s)					4.0			4.0				
Lane Grp Cap (vph)					1465			1498				
v/s Ratio Prot					c0.34							
v/s Ratio Perm								0.33				
v/c Ratio					0.73			0.72				
Uniform Delay, d1					21.9			21.8				
Progression Factor					1.00			0.69				
Incremental Delay, d2					3.2			1.8				
Delay (s)					25.2			16.8				
Level of Service					C			B				
Approach Delay (s)		0.0			25.2			16.8			0.0	
Approach LOS		A			C			B			A	

Intersection Summary			
HCM Average Control Delay	21.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	62.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

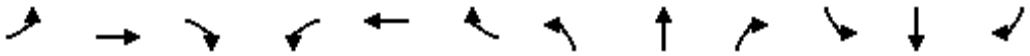
131: Arizona Ave & Wall St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0									4.0	
Lane Util. Factor		0.95									0.95	
Frt		1.00									1.00	
Flt Protected		1.00									0.98	
Satd. Flow (prot)		3308									3214	
Flt Permitted		1.00									0.98	
Satd. Flow (perm)		3308									3214	
Volume (vph)	0	1200	25	0	0	0	0	0	0	285	480	0
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1304	27	0	0	0	0	0	0	310	522	0
RTOR Reduction (vph)	0	1	0	0	0	0	0	0	0	0	27	0
Lane Group Flow (vph)	0	1330	0	0	0	0	0	0	0	0	805	0
Parking (#/hr)		5	5							10	10	10
Turn Type										Perm		
Protected Phases		2									4	
Permitted Phases										4		
Actuated Green, G (s)		54.1									37.9	
Effective Green, g (s)		54.1									37.9	
Actuated g/C Ratio		0.54									0.38	
Clearance Time (s)		4.0									4.0	
Lane Grp Cap (vph)		1790									1218	
v/s Ratio Prot		c0.40										
v/s Ratio Perm											0.25	
v/c Ratio		0.74									0.66	
Uniform Delay, d1		17.6									25.7	
Progression Factor		0.66									0.36	
Incremental Delay, d2		2.6									2.3	
Delay (s)		14.2									11.6	
Level of Service		B									B	
Approach Delay (s)		14.2			0.0			0.0			11.6	
Approach LOS		B			A			A			B	

Intersection Summary			
HCM Average Control Delay	13.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	62.2%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

132: Arizona Ave & Bond St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0						4.0				
Lane Util. Factor		0.95						0.95				
Frt		1.00						0.96				
Flt Protected		0.98						1.00				
Satd. Flow (prot)		3222						3138				
Flt Permitted		0.98						1.00				
Satd. Flow (perm)		3222						3138				
Volume (vph)	480	1000	0	0	0	0	0	520	200	0	0	0
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	522	1087	0	0	0	0	0	565	217	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	40	0	0	0	0
Lane Group Flow (vph)	0	1609	0	0	0	0	0	742	0	0	0	0
Parking (#/hr)	10	10	10				10	10	10			
Turn Type	Perm						Perm					
Protected Phases		2						8				
Permitted Phases	2						8					
Actuated Green, G (s)		61.0						31.0				
Effective Green, g (s)		61.0						31.0				
Actuated g/C Ratio		0.61						0.31				
Clearance Time (s)		4.0						4.0				
Lane Grp Cap (vph)		1965						973				
v/s Ratio Prot								c0.24				
v/s Ratio Perm		0.50										
v/c Ratio		0.82						0.76				
Uniform Delay, d1		15.2						31.2				
Progression Factor		0.43						1.00				
Incremental Delay, d2		2.7						5.6				
Delay (s)		9.3						36.8				
Level of Service		A						D				
Approach Delay (s)		9.3			0.0			36.8			0.0	
Approach LOS		A			A			D			A	

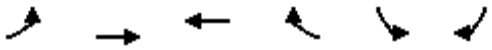
Intersection Summary			
HCM Average Control Delay	18.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	69.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

133: Colorado Ave & Bend Pkway SB Ramp

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0			4.0	4.0	4.0		4.0
Lane Util. Factor					1.00			1.00	1.00	1.00		1.00
Frt					0.98			1.00	0.85	1.00		0.85
Flt Protected					1.00			1.00	1.00	0.95		1.00
Satd. Flow (prot)					1829			1859	1583	1770		1583
Flt Permitted					1.00			1.00	1.00	0.41		1.00
Satd. Flow (perm)					1829			1859	1583	756		1583
Volume (vph)	0	0	0	5	500	75	10	230	960	130	0	420
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	5	543	82	11	250	1043	141	0	457
RTOR Reduction (vph)	0	0	0	0	5	0	0	0	186	0	0	97
Lane Group Flow (vph)	0	0	0	0	625	0	0	261	857	141	0	360
Turn Type				custom			Split		custom	D.P+P		custom
Protected Phases				8	8		6	6	6 8	2		2
Permitted Phases				8					6 8	6		6
Actuated Green, G (s)					46.5			33.3	83.8	61.5		61.5
Effective Green, g (s)					46.5			33.3	83.8	61.5		61.5
Actuated g/C Ratio					0.39			0.28	0.70	0.51		0.51
Clearance Time (s)					4.0			4.0		4.0		4.0
Vehicle Extension (s)					3.0			3.0		3.0		3.0
Lane Grp Cap (vph)					709			516	1105	626		864
v/s Ratio Prot					c0.34			0.14	c0.54	0.05		c0.10
v/s Ratio Perm										0.06		0.13
v/c Ratio					0.88			0.51	0.78	0.23		0.42
Uniform Delay, d1					34.2			36.4	11.9	16.0		18.1
Progression Factor					1.00			1.00	1.00	1.00		1.00
Incremental Delay, d2					12.4			0.8	3.5	0.2		0.3
Delay (s)					46.6			37.2	15.4	16.2		18.5
Level of Service					D			D	B	B		B
Approach Delay (s)		0.0			46.6			19.8			17.9	
Approach LOS		A			D			B			B	

Intersection Summary			
HCM Average Control Delay	26.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	79.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

102: Butler Mkt Rd & Bend Pkway SB Ramp

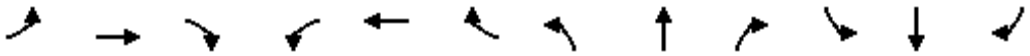


Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	0	735	865	0	475	250
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	799	940	0	516	272
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					TWLTL	
Median storage veh)					1	
Upstream signal (ft)		461				
pX, platoon unblocked					0.88	
vC, conflicting volume	940				1739	940
vC1, stage 1 conf vol					940	
vC2, stage 2 conf vol					799	
vCu, unblocked vol	940				1845	940
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)	2.2				3.5	3.3
p0 queue free %	100				0	15
cM capacity (veh/h)	729				211	320

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	799	940	788
Volume Left	0	0	516
Volume Right	0	0	272
cSH	1700	1700	239
Volume to Capacity	0.47	0.55	3.30
Queue Length 95th (ft)	0	0	Err
Control Delay (s)	0.0	0.0	Err
Lane LOS			F
Approach Delay (s)	0.0	0.0	Err
Approach LOS			F

Intersection Summary			
Average Delay	3118.0		
Intersection Capacity Utilization	93.8%	ICU Level of Service	F
Analysis Period (min)	15		

103: Butler Mkt Rd & Bend Pkwy NB Ramp



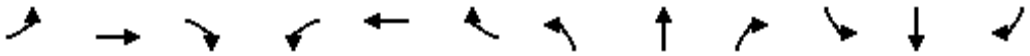
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	110	1085	15	10	845	285	20	5	30	0	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	120	1179	16	11	918	310	22	5	33	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								TWLTL			None	
Median storage veh)								1				
Upstream signal (ft)		910										
pX, platoon unblocked				0.89			0.89	0.89	0.89	0.89	0.89	
vC, conflicting volume	1228			1196			2367	2677	1188	2549	2530	1073
vC1, stage 1 conf vol							1427	1427				
vC2, stage 2 conf vol							940	1250				
vCu, unblocked vol	1228			1220			2538	2886	1211	2743	2721	1073
tC, single (s)	4.1			4.1			*6.4	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							5.4	5.5				
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	79			98			77	91	83	100	100	100
cM capacity (veh/h)	567			508			95	62	198	7	14	267

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	120	1196	11	1228	60
Volume Left	120	0	11	0	22
Volume Right	0	16	0	310	33
cSH	567	1700	508	1700	124
Volume to Capacity	0.21	0.70	0.02	0.72	0.48
Queue Length 95th (ft)	20	0	2	0	55
Control Delay (s)	13.0	0.0	12.2	0.0	58.5
Lane LOS	B		B		F
Approach Delay (s)	1.2		0.1		58.5
Approach LOS					F

Intersection Summary			
Average Delay	2.0		
Intersection Capacity Utilization	81.2%	ICU Level of Service	D
Analysis Period (min)	15		

* User Entered Value

104: Butler Mkt Rd & 4th St

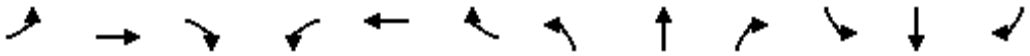


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	880	225	120	775	0	320	0	95	0	20	45
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	957	245	130	842	0	348	0	103	0	22	49
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								TWLTL			None	
Median storage veh)								1				
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	842			1201			2242	2182	1079	2163	2304	842
vC1, stage 1 conf vol							1079	1079				
vC2, stage 2 conf vol							1163	1103				
vCu, unblocked vol	842			1201			2242	2182	1079	2163	2304	842
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5				
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			78			0	100	61	100	27	87
cM capacity (veh/h)	793			581			36	132	266	17	30	364

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1
Volume Total	0	1201	130	842	348	103	71
Volume Left	0	0	130	0	348	0	0
Volume Right	0	245	0	0	0	103	49
cSH	1700	1700	581	1700	36	266	82
Volume to Capacity	0.00	0.71	0.22	0.50	9.76	0.39	0.86
Queue Length 95th (ft)	0	0	21	0	Err	44	112
Control Delay (s)	0.0	0.0	13.0	0.0	Err	26.9	152.8
Lane LOS			B		F	D	F
Approach Delay (s)	0.0		1.7		7716.2		152.8
Approach LOS					F		F

Intersection Summary			
Average Delay	1295.9		
Intersection Capacity Utilization	101.0%	ICU Level of Service	G
Analysis Period (min)	15		

105: Studio Rd & 4th St

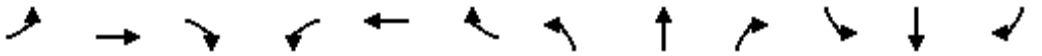


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	5	10	5	375	25	70	0	420	315	100	620	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	11	5	408	27	76	0	457	342	109	674	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1609	1690	674	1530	1519	628	674			799		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1609	1690	674	1530	1519	628	674			799		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	89	87	99	0	74	84	100			87		
cM capacity (veh/h)	51	81	455	76	103	483	917			824		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	22	511	799	783
Volume Left	5	408	0	109
Volume Right	5	76	342	0
cSH	86	89	917	824
Volume to Capacity	0.25	5.75	0.00	0.13
Queue Length 95th (ft)	23	Err	0	11
Control Delay (s)	60.4	Err	0.0	3.3
Lane LOS	F	F		A
Approach Delay (s)	60.4	Err	0.0	3.3
Approach LOS	F	F		

Intersection Summary			
Average Delay	2418.0		
Intersection Capacity Utilization	122.5%	ICU Level of Service	H
Analysis Period (min)	15		

109: Revere Ave & 4th St

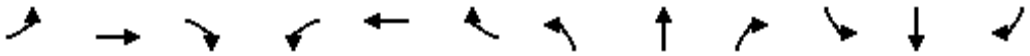


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	290	400	150	25	400	120	100	275	50	265	290	460
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	315	435	163	27	435	130	109	299	54	288	315	500

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1	SB 2
Volume Total (vph)	315	598	27	565	462	603	500
Volume Left (vph)	315	0	27	0	109	288	0
Volume Right (vph)	0	163	0	130	54	0	500
Hadj (s)	0.53	-0.16	0.53	-0.13	0.01	0.27	-0.67
Departure Headway (s)	10.2	9.5	10.4	9.8	10.1	9.8	8.9
Degree Utilization, x	0.89	1.58	0.08	1.53	1.29	1.65	1.24
Capacity (veh/h)	344	383	340	381	364	369	410
Control Delay (s)	56.0	294.6	13.1	277.1	179.1	327.2	153.1
Approach Delay (s)	212.2		265.0		179.1	248.3	
Approach LOS	F		F		F	F	

Intersection Summary				
Delay	230.4			
HCM Level of Service	F			
Intersection Capacity Utilization	110.7%	ICU Level of Service	H	
Analysis Period (min)	15			

112: Olney Ave & 4th St

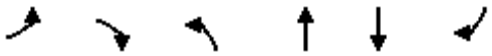


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	145	525	55	60	450	55	50	250	80	150	155	105
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	158	571	60	65	489	60	54	272	87	163	168	114

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total (vph)	158	630	65	549	413	446
Volume Left (vph)	158	0	65	0	54	163
Volume Right (vph)	0	60	0	60	87	114
Hadj (s)	0.53	-0.03	0.53	-0.04	-0.07	-0.05
Departure Headway (s)	10.2	9.6	10.2	9.6	9.4	9.4
Degree Utilization, x	0.44	1.68	0.18	1.46	1.08	1.17
Capacity (veh/h)	342	379	350	386	391	386
Control Delay (s)	19.8	339.7	14.2	246.0	99.6	129.0
Approach Delay (s)	275.7		221.4		99.6	129.0
Approach LOS	F		F		F	F

Intersection Summary				
Delay	199.9			
HCM Level of Service	F			
Intersection Capacity Utilization	92.0%	ICU Level of Service	F	
Analysis Period (min)	15			

113: Lafayette Ave & Bend Pkwy SB Ramp

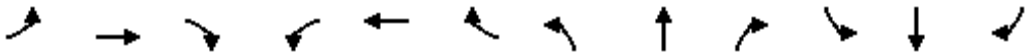


Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	0	125	0	3445	2725	75
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	136	0	3745	2962	82
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)				740		
pX, platoon unblocked						
vC, conflicting volume	4834	1481	3043			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	4834	1481	3043			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	0	100			
cM capacity (veh/h)	1	114	109			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	136	1872	1872	1481	1481	82
Volume Left	0	0	0	0	0	0
Volume Right	136	0	0	0	0	82
cSH	114	1700	1700	1700	1700	1700
Volume to Capacity	1.19	1.10	1.10	0.87	0.87	0.05
Queue Length 95th (ft)	215	0	0	0	0	0
Control Delay (s)	214.9	0.0	0.0	0.0	0.0	0.0
Lane LOS	F					
Approach Delay (s)	214.9	0.0		0.0		
Approach LOS	F					

Intersection Summary			
Average Delay	4.2		
Intersection Capacity Utilization	98.6%	ICU Level of Service	F
Analysis Period (min)	15		

114: Wall St. & Bond St

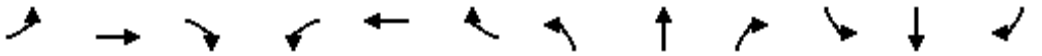


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	10	190	0	0	755	10	80	15	500	20	0	45
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	11	207	0	0	821	11	87	16	543	22	0	49
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)		563			155							
pX, platoon unblocked												
vC, conflicting volume	832			207			1103	1060	207	1606	1054	826
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	832			207			1103	1060	207	1606	1054	826
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			100			46	93	35	21	100	87
cM capacity (veh/h)	801			1365			162	221	834	28	223	372

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total	217	832	103	543	71
Volume Left	11	0	87	0	22
Volume Right	0	11	0	543	49
cSH	801	1700	169	834	77
Volume to Capacity	0.01	0.49	0.61	0.65	0.92
Queue Length 95th (ft)	1	0	84	124	120
Control Delay (s)	0.6	0.0	54.9	17.0	174.7
Lane LOS	A		F	C	F
Approach Delay (s)	0.6	0.0	23.1		174.7
Approach LOS			C		F

Intersection Summary				
Average Delay	15.5			
Intersection Capacity Utilization	58.9%	ICU Level of Service		B
Analysis Period (min)	15			

118: Greenwood Ave & 4th St

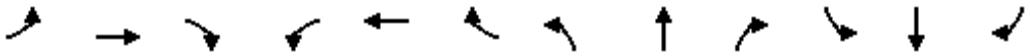


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	35	1665	30	100	1335	195	0	0	130	0	0	160
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	38	1810	33	109	1451	212	0	0	141	0	0	174
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)		495										
pX, platoon unblocked				0.75			0.75	0.75	0.75	0.75	0.75	
vC, conflicting volume	1663			1842			3019	3783	921	2897	3693	832
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1663			1789			3362	4383	558	3199	4263	832
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	90			58			100	100	60	100	100	44
cM capacity (veh/h)	383			256			1	1	354	1	1	313

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	38	1207	636	109	967	696	141	174
Volume Left	38	0	0	109	0	0	0	0
Volume Right	0	0	33	0	0	212	141	174
cSH	383	1700	1700	256	1700	1700	354	313
Volume to Capacity	0.10	0.71	0.37	0.42	0.57	0.41	0.40	0.56
Queue Length 95th (ft)	8	0	0	50	0	0	47	79
Control Delay (s)	15.4	0.0	0.0	29.1	0.0	0.0	21.8	30.0
Lane LOS	C			D			C	D
Approach Delay (s)	0.3			1.8			21.8	30.0
Approach LOS							C	D

Intersection Summary				
Average Delay	3.0			
Intersection Capacity Utilization	61.7%	ICU Level of Service	B	
Analysis Period (min)	15			

119: Hawthorne Ave & 3rd St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	15	5	45	0	5	55	10	1630	40	45	1585	30
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	16	5	49	0	5	60	11	1772	43	49	1723	33
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh)		1			1							
Upstream signal (ft)								745			734	
pX, platoon unblocked	0.81	0.81	0.62	0.81	0.81	0.62	0.62			0.62		
vC, conflicting volume	2807	3674	878	2826	3668	908	1755			1815		
vC1, stage 1 conf vol	1837	1837		1815	1815							
vC2, stage 2 conf vol	970	1837		1011	1853							
vCu, unblocked vol	1581	2653	183	1604	2646	232	1604			1701		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		6.5	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	59	79	90	100	85	87	96			79		
cM capacity (veh/h)	40	26	511	50	37	476	249			229		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	71	65	11	1181	634	49	1149	607
Volume Left	16	0	11	0	0	49	0	0
Volume Right	49	60	0	0	43	0	0	33
cSH	99	238	249	1700	1700	229	1700	1700
Volume to Capacity	0.71	0.27	0.04	0.69	0.37	0.21	0.68	0.36
Queue Length 95th (ft)	92	27	3	0	0	20	0	0
Control Delay (s)	102.3	25.7	20.1	0.0	0.0	25.0	0.0	0.0
Lane LOS	F	D	C			C		
Approach Delay (s)	102.3	25.7	0.1			0.7		
Approach LOS	F	D						

Intersection Summary				
Average Delay	2.7			
Intersection Capacity Utilization	63.5%	ICU Level of Service	B	
Analysis Period (min)	15			

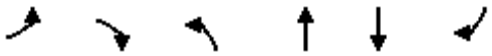
120: Hawthorne Ave & 4th St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	50	30	30	5	10	5	15	90	5	10	130	35
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	54	33	33	5	11	5	16	98	5	11	141	38
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	326	318	160	364	334	101	179			103		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	326	318	160	364	334	101	179			103		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	91	94	96	99	98	99	99			99		
cM capacity (veh/h)	606	587	885	538	575	955	1396			1489		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	120	22	120	190
Volume Left	54	5	16	11
Volume Right	33	5	5	38
cSH	656	627	1396	1489
Volume to Capacity	0.18	0.03	0.01	0.01
Queue Length 95th (ft)	17	3	1	1
Control Delay (s)	11.7	11.0	1.1	0.5
Lane LOS	B	B	A	A
Approach Delay (s)	11.7	11.0	1.1	0.5
Approach LOS	B	B		

Intersection Summary				
Average Delay	4.1			
Intersection Capacity Utilization	28.3%	ICU Level of Service	A	
Analysis Period (min)	15			

123: Oregon St & Bend Pkwy SB Ramp

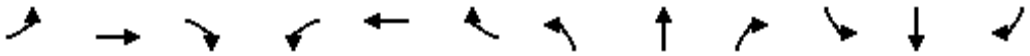


Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	0	290	0	3445	2695	220
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	315	0	3745	2929	239
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)				773	710	
pX, platoon unblocked						
vC, conflicting volume	4802	1465	3168			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	4802	1465	3168			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	0	100			
cM capacity (veh/h)	1	117	97			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	315	1872	1872	1465	1465	239
Volume Left	0	0	0	0	0	0
Volume Right	315	0	0	0	0	239
cSH	117	1700	1700	1700	1700	1700
Volume to Capacity	2.68	1.10	1.10	0.86	0.86	0.14
Queue Length 95th (ft)	721	0	0	0	0	0
Control Delay (s)	839.9	0.0	0.0	0.0	0.0	0.0
Lane LOS	F					
Approach Delay (s)	839.9	0.0		0.0		
Approach LOS	F					

Intersection Summary			
Average Delay	36.6		
Intersection Capacity Utilization	99.1%	ICU Level of Service	F
Analysis Period (min)	15		

127: Franklin Ave & 4th St

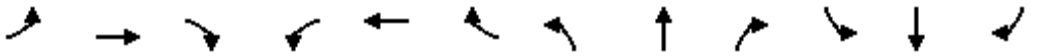


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	80	735	50	25	470	15	25	25	45	15	15	145
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	87	799	54	27	511	16	27	27	49	16	16	158
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)		490										
pX, platoon unblocked				0.80			0.80	0.80	0.80	0.80	0.80	
vC, conflicting volume	527			853			1476	1582	427	1209	1601	264
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	527			568			1345	1477	35	1012	1501	264
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	92			97			50	69	94	84	81	79
cM capacity (veh/h)	1036			801			54	88	825	102	86	735

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	87	533	321	27	341	187	103	190
Volume Left	87	0	0	27	0	0	27	16
Volume Right	0	0	54	0	0	16	49	158
cSH	1036	1700	1700	801	1700	1700	119	337
Volume to Capacity	0.08	0.31	0.19	0.03	0.20	0.11	0.87	0.57
Queue Length 95th (ft)	7	0	0	3	0	0	133	83
Control Delay (s)	8.8	0.0	0.0	9.7	0.0	0.0	118.8	28.7
Lane LOS	A			A			F	D
Approach Delay (s)	0.8			0.5			118.8	28.7
Approach LOS							F	D

Intersection Summary				
Average Delay	10.5			
Intersection Capacity Utilization	47.0%	ICU Level of Service	A	
Analysis Period (min)	15			

128: Tumalo Ave & Riverside Dr

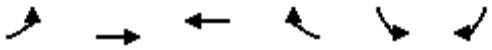


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	460	300	45	0	350	10	50	5	5	20	35	670
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	500	326	49	0	380	11	54	5	5	22	38	728

Direction, Lane #	EB 1	WB 1	NB 1	SB 1	SB 2
Volume Total (vph)	875	391	65	60	728
Volume Left (vph)	500	0	54	22	0
Volume Right (vph)	49	11	5	0	728
Hadj (s)	0.11	0.02	0.15	0.22	-0.67
Departure Headway (s)	7.2	7.4	9.3	7.9	7.0
Degree Utilization, x	1.76	0.81	0.17	0.13	1.42
Capacity (veh/h)	504	479	365	446	517
Control Delay (s)	366.7	34.6	14.1	10.9	217.5
Approach Delay (s)	366.7	34.6	14.1	201.9	
Approach LOS	F	D	B	F	

Intersection Summary				
Delay	233.3			
HCM Level of Service	F			
Intersection Capacity Utilization	83.0%	ICU Level of Service	E	
Analysis Period (min)	15			

134: Colorado Ave & Bend Pkwy NB Ramp



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	850	240	310	645	30	270
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	924	261	337	701	33	293
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)		818				
pX, platoon unblocked						
vC, conflicting volume	1038				2796	688
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1038				2796	688
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	0				0	34
cM capacity (veh/h)	670				0	447

Direction, Lane #	EB 1	EB 2	WB 1	SB 1	SB 2
Volume Total	924	261	1038	33	293
Volume Left	924	0	0	33	0
Volume Right	0	0	701	0	293
cSH	670	1700	1700	0	447
Volume to Capacity	1.38	0.15	0.61	Err	0.66
Queue Length 95th (ft)	1009	0	0	Err	116
Control Delay (s)	198.9	0.0	0.0	Err	27.2
Lane LOS	F			F	D
Approach Delay (s)	155.1		0.0	Err	
Approach LOS				F	

Intersection Summary			
Average Delay	Err		
Intersection Capacity Utilization	116.4%	ICU Level of Service	H
Analysis Period (min)	15		

APPENDIX C

2030 Central Area Plan Intersection Traffic Operations Analysis Worksheets for Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00		1.00	0.95		1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.91		1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	3433	1700		1770	3471		1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	1863	1583	3433	1700		1770	3471		1770	3539	1583
Volume (vph)	150	220	250	620	215	300	250	1600	235	280	1935	110
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	163	239	272	674	234	326	272	1739	255	304	2103	120
RTOR Reduction (vph)	0	0	159	0	28	0	0	7	0	0	0	24
Lane Group Flow (vph)	163	239	113	674	532	0	272	1987	0	304	2103	96
Turn Type	Prot		Perm	Prot			Prot			Prot		Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases			8									2
Actuated Green, G (s)	13.0	24.0	24.0	34.0	45.0		21.5	81.0		24.5	84.0	84.0
Effective Green, g (s)	13.0	24.0	24.0	34.0	45.0		21.0	82.0		24.0	85.0	85.0
Actuated g/C Ratio	0.07	0.13	0.13	0.19	0.25		0.12	0.46		0.13	0.47	0.47
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		3.5	5.0		3.5	5.0	5.0
Lane Grp Cap (vph)	128	248	211	648	425		207	1581		236	1671	748
v/s Ratio Prot	c0.09	0.13		0.20	c0.33		0.15	c0.57		0.17	c0.59	
v/s Ratio Perm			0.17									0.08
v/c Ratio	1.27	0.96	0.54	1.04	1.25		1.31	1.26		1.29	1.26	0.13
Uniform Delay, d1	83.5	77.6	72.8	73.0	67.5		79.5	49.0		78.0	47.5	26.7
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	170.4	48.5	9.5	46.2	131.7		171.3	121.0		157.7	121.4	0.4
Delay (s)	253.9	126.1	82.3	119.2	199.2		250.8	170.0		235.7	168.9	27.0
Level of Service	F	F	F	F	F		F	F		F	F	C
Approach Delay (s)		139.3			155.5			179.7			170.2	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM Average Control Delay	167.6	HCM Level of Service	F
HCM Volume to Capacity ratio	1.27		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	118.7%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Bend Central Area Plan
Revere Avenue @ SB Parkway Ramps

2030 CAP with Added Trip Reductions

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor		1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt		0.97		1.00	0.87		1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.98		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1777		1770	1620		1770	1863	1583	1770	1859	
Flt Permitted		0.98		0.95	1.00		0.41	1.00	1.00	0.53	1.00	
Satd. Flow (perm)		1777		1770	1620		770	1863	1583	980	1859	
Volume (vph)	15	20	10	720	65	435	20	220	960	255	300	5
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	16	22	11	783	71	473	22	239	1043	277	326	5
RTOR Reduction (vph)	0	10	0	0	273	0	0	0	182	0	1	0
Lane Group Flow (vph)	0	39	0	783	271	0	22	239	861	277	330	0
Turn Type	Split			Split			Perm		pm+ov	Perm		
Protected Phases	7	7		3	3			6	3		2	
Permitted Phases							6		6	2		
Actuated Green, G (s)		6.0		36.0	36.0		31.0	31.0	67.0	31.0	31.0	
Effective Green, g (s)		6.0		36.0	36.0		31.0	31.0	67.0	31.0	31.0	
Actuated g/C Ratio		0.07		0.42	0.42		0.36	0.36	0.79	0.36	0.36	
Clearance Time (s)		4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)		2.5		2.5	2.5		4.3	4.3	2.5	4.3	4.3	
Lane Grp Cap (vph)		125		750	686		281	679	1322	357	678	
v/s Ratio Prot		c0.03		c0.44	0.34			0.13	c0.33		0.18	
v/s Ratio Perm							0.03		0.32	0.28		
v/c Ratio		0.31		1.04	0.40		0.08	0.35	0.65	0.78	0.49	
Uniform Delay, d1		37.5		24.5	17.0		17.7	19.7	3.9	23.9	20.9	
Progression Factor		1.00		0.84	0.48		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		1.0		38.9	0.2		0.5	1.4	1.0	15.2	2.5	
Delay (s)		38.6		59.4	8.3		18.2	21.1	5.0	39.1	23.4	
Level of Service		D		E	A		B	C	A	D	C	
Approach Delay (s)		38.6			38.4			8.1			30.5	
Approach LOS		D			D			A			C	

Intersection Summary			
HCM Average Control Delay	25.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	91.9%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Bend Central Area Plan
Revere Avenue @ NB Parkway Ramps

2030 CAP with Added Trip Reductions

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0			4.0	4.0	4.0	4.0	4.0
Lane Util. Factor		0.95	1.00		0.95			1.00	1.00	1.00	1.00	1.00
Frt		1.00	0.85		0.97			1.00	0.85	1.00	1.00	0.85
Flt Protected		0.99	1.00		1.00			0.99	1.00	0.95	1.00	1.00
Satd. Flow (prot)		3488	1583		3433			1835	1583	1770	1863	1583
Flt Permitted		0.53	1.00		0.81			0.90	1.00	0.95	1.00	1.00
Satd. Flow (perm)		1864	1583		2801			1670	1583	1770	1863	1583
Volume (vph)	190	460	585	60	680	160	160	370	600	160	5	380
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	207	500	636	65	739	174	174	402	652	174	5	413
RTOR Reduction (vph)	0	0	383	0	22	0	0	0	129	0	0	50
Lane Group Flow (vph)	0	707	253	0	956	0	0	576	523	174	5	363
Turn Type	Perm		Perm	Perm			Perm		Perm	Prot		Perm
Protected Phases		2			6			8		7	4	
Permitted Phases	2		2	6			8		8			4
Actuated Green, G (s)		33.8	33.8		33.8			30.0	30.0	9.2	43.2	43.2
Effective Green, g (s)		33.8	33.8		33.8			30.0	30.0	9.2	43.2	43.2
Actuated g/C Ratio		0.40	0.40		0.40			0.35	0.35	0.11	0.51	0.51
Clearance Time (s)		4.0	4.0		4.0			4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)		2.5	2.5		2.5			2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)		741	629		1114			589	559	192	947	805
v/s Ratio Prot										c0.10	0.00	
v/s Ratio Perm		0.38	0.40		0.35			0.34	0.41			0.26
v/c Ratio		1.75dl	0.40		0.86			0.98	0.94	0.91	0.01	0.45
Uniform Delay, d1		24.8	18.4		23.4			27.2	26.6	37.5	10.3	13.3
Progression Factor		0.82	0.14		0.50			1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		18.5	1.3		0.7			31.0	22.9	38.7	0.0	0.1
Delay (s)		38.7	3.9		12.5			58.2	49.5	76.2	10.3	13.5
Level of Service		D	A		B			E	D	E	B	B
Approach Delay (s)		22.2			12.5			53.6			31.9	
Approach LOS		C			B			D			C	

Intersection Summary			
HCM Average Control Delay	30.6	HCM Level of Service	C
HCM Volume to Capacity ratio	1.06		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	94.4%	ICU Level of Service	F
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.
c Critical Lane Group

Bend Central Area Plan
Revere Avenue @ 3rd Street

2030 CAP with Added Trip Reductions

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		0.91	0.91		1.00	0.95		1.00	0.95	
Frt	1.00	0.95		1.00	0.98		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3365		1610	3314		1770	3491		1770	3498	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3365		1610	3314		1770	3491		1770	3498	
Volume (vph)	280	605	295	375	560	90	225	1765	175	110	1245	105
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	304	658	321	408	609	98	245	1918	190	120	1353	114
RTOR Reduction (vph)	0	35	0	0	7	0	0	4	0	0	4	0
Lane Group Flow (vph)	304	944	0	362	746	0	245	2104	0	120	1463	0
Turn Type	Split			Split			Prot			Prot		
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	37.0	37.0		31.0	31.0		18.0	76.0		10.0	68.0	
Effective Green, g (s)	37.0	37.0		31.0	31.0		18.0	76.0		10.0	68.0	
Actuated g/C Ratio	0.22	0.22		0.18	0.18		0.11	0.45		0.06	0.40	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	2.5	2.5		2.5	2.5		2.5	4.3		2.5	4.3	
Lane Grp Cap (vph)	385	732		294	604		187	1561		104	1399	
v/s Ratio Prot	0.17	c0.29		0.22	c0.23		0.14	c0.60		0.07	c0.42	
v/s Ratio Perm												
v/c Ratio	0.79	1.29		1.23	1.24		1.31	1.35		1.15	1.05	
Uniform Delay, d1	62.8	66.5		69.5	69.5		76.0	47.0		80.0	51.0	
Progression Factor	0.99	0.99		1.00	1.00		0.61	0.36		1.00	1.00	
Incremental Delay, d2	3.7	133.9		130.1	120.0		143.1	156.8		135.5	37.1	
Delay (s)	65.8	199.6		199.6	189.5		189.2	173.8		215.5	88.1	
Level of Service	E	F		F	F		F	F		F	F	
Approach Delay (s)		167.9			192.8			175.4			97.7	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM Average Control Delay	157.5	HCM Level of Service	F
HCM Volume to Capacity ratio	1.32		
Actuated Cycle Length (s)	170.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	119.5%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Bend Central Area Plan
Portland Avenue @ Wall Street

2030 CAP with Added Trip Reductions

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.96		1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	1781		1770	1863	1583	1770	1812		1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.19	1.00		0.11	1.00	1.00
Satd. Flow (perm)	1770	1781		1770	1863	1583	354	1812		212	1863	1583
Volume (vph)	370	325	135	115	390	150	200	745	165	80	450	480
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	402	353	147	125	424	163	217	810	179	87	489	522
RTOR Reduction (vph)	0	16	0	0	0	130	0	8	0	0	0	337
Lane Group Flow (vph)	402	484	0	125	424	33	217	981	0	87	489	185
Turn Type	Prot			Prot		Perm	pm+pt			pm+pt		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8	2			6		6
Actuated Green, G (s)	17.8	28.7		9.2	20.1	20.1	48.8	40.1		39.8	35.1	35.1
Effective Green, g (s)	18.0	28.7		9.4	20.1	20.1	48.8	40.1		39.8	35.1	35.1
Actuated g/C Ratio	0.18	0.29		0.10	0.20	0.20	0.49	0.41		0.40	0.35	0.35
Clearance Time (s)	4.2	4.0		4.2	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	2.5	2.5		2.5	2.5	2.5	3.0	4.2		2.5	4.2	4.2
Lane Grp Cap (vph)	322	517		168	379	322	314	735		159	661	562
v/s Ratio Prot	c0.23	0.28		0.07	c0.23		c0.07	c0.55		0.03	0.26	
v/s Ratio Perm						0.10	0.27			0.19		0.33
v/c Ratio	1.25	0.94		0.74	1.12	0.10	0.69	1.34		0.55	0.74	0.33
Uniform Delay, d1	40.5	34.2		43.6	39.4	32.1	18.2	29.4		24.8	27.9	23.3
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	135.1	24.6		15.5	82.4	0.1	6.4	160.0		3.0	4.7	0.5
Delay (s)	175.5	58.8		59.1	121.8	32.2	24.7	189.4		27.8	32.7	23.8
Level of Service	F	E		E	F	C	C	F		C	C	C
Approach Delay (s)		110.8			90.3			159.7			28.1	
Approach LOS		F			F			F			C	

Intersection Summary			
HCM Average Control Delay	99.0	HCM Level of Service	F
HCM Volume to Capacity ratio	1.25		
Actuated Cycle Length (s)	98.9	Sum of lost time (s)	16.0
Intersection Capacity Utilization	108.6%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.96		1.00	0.96		1.00	0.99		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1784		1770	1793		1770	3496		1770	3527	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1784		1770	1793		1770	3496		1770	3527	
Volume (vph)	175	395	155	190	390	130	150	1880	165	200	1700	40
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	190	429	168	207	424	141	163	2043	179	217	1848	43
RTOR Reduction (vph)	0	8	0	0	7	0	0	4	0	0	1	0
Lane Group Flow (vph)	190	589	0	207	558	0	163	2218	0	217	1890	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	15.5	43.0		13.5	41.0		12.5	80.0		17.5	85.0	
Effective Green, g (s)	15.0	43.0		13.0	41.0		12.0	81.0		17.0	86.0	
Actuated g/C Ratio	0.09	0.25		0.08	0.24		0.07	0.48		0.10	0.51	
Clearance Time (s)	3.5	4.0		3.5	4.0		3.5	5.0		3.5	5.0	
Vehicle Extension (s)	2.5	2.5		2.5	2.5		2.5	4.8		2.5	4.8	
Lane Grp Cap (vph)	156	451		135	432		125	1666		177	1784	
v/s Ratio Prot	0.11	c0.33		c0.12	0.32		0.09	c0.64		c0.12	c0.54	
v/s Ratio Perm												
v/c Ratio	1.22	1.31		1.53	1.29		1.30	1.33		1.23	1.06	
Uniform Delay, d1	77.5	63.5		78.5	64.5		79.0	44.5		76.5	42.0	
Progression Factor	1.00	1.00		1.00	1.00		0.66	0.57		0.80	0.43	
Incremental Delay, d2	142.5	152.8		273.6	147.8		142.1	149.6		106.4	28.3	
Delay (s)	220.0	216.3		352.1	212.3		194.6	175.1		167.3	46.2	
Level of Service	F	F		F	F		F	F		F	D	
Approach Delay (s)		217.2			249.8			176.5			58.7	
Approach LOS		F			F			F			E	

Intersection Summary			
HCM Average Control Delay	150.1	HCM Level of Service	F
HCM Volume to Capacity ratio	1.30		
Actuated Cycle Length (s)	170.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	122.4%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0						4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	1.00						0.95	1.00
Frt	1.00	0.96		1.00	0.99						1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00						0.99	1.00
Satd. Flow (prot)	1770	3396		1770	1845						3506	1583
Flt Permitted	0.95	1.00		0.95	1.00						0.99	1.00
Satd. Flow (perm)	1770	3396		1770	1845						3506	1583
Volume (vph)	150	540	200	390	680	45	0	0	0	145	630	170
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	163	587	217	424	739	49	0	0	0	158	685	185
RTOR Reduction (vph)	0	38	0	0	3	0	0	0	0	0	0	139
Lane Group Flow (vph)	163	766	0	424	785	0	0	0	0	0	843	46
Turn Type	Prot			Prot						Perm		Perm
Protected Phases	5	2		1	6						4	
Permitted Phases										4		4
Actuated Green, G (s)	14.0	35.0		28.0	49.0						25.0	25.0
Effective Green, g (s)	14.0	35.0		28.0	49.0						25.0	25.0
Actuated g/C Ratio	0.14	0.35		0.28	0.49						0.25	0.25
Clearance Time (s)	4.0	4.0		4.0	4.0						4.0	4.0
Lane Grp Cap (vph)	248	1189		496	904						877	396
v/s Ratio Prot	0.09	0.24		c0.24	c0.43							
v/s Ratio Perm											0.24	0.12
v/c Ratio	0.66	0.64		0.85	0.87						0.96	0.12
Uniform Delay, d1	40.7	27.3		34.1	22.6						37.0	29.0
Progression Factor	1.00	1.00		0.77	0.44						1.00	1.00
Incremental Delay, d2	12.8	2.7		12.1	7.8						22.3	0.6
Delay (s)	53.6	30.0		38.3	17.9						59.3	29.6
Level of Service	D	C		D	B						E	C
Approach Delay (s)		34.0			25.0			0.0			54.0	
Approach LOS		C			C			A			D	

Intersection Summary			
HCM Average Control Delay	37.0	HCM Level of Service	D
HCM Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	78.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Bend Central Area Plan
Greenwood Avenue @ Bond Street

2030 CAP with Added Trip Reductions

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0				
Lane Util. Factor		0.95			0.95			0.95				
Frt		1.00			0.98			0.95				
Flt Protected		1.00			1.00			0.99				
Satd. Flow (prot)		3534			3478			3332				
Flt Permitted		0.88			1.00			0.99				
Satd. Flow (perm)		3099			3478			3332				
Volume (vph)	20	675	0	0	850	110	265	560	390	0	0	0
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	22	734	0	0	924	120	288	609	424	0	0	0
RTOR Reduction (vph)	0	0	0	0	10	0	0	54	0	0	0	0
Lane Group Flow (vph)	0	756	0	0	1034	0	0	1267	0	0	0	0
Turn Type	Perm						Perm					
Protected Phases		2			6			8				
Permitted Phases	2						8					
Actuated Green, G (s)		42.0			42.0			50.0				
Effective Green, g (s)		42.0			42.0			50.0				
Actuated g/C Ratio		0.42			0.42			0.50				
Clearance Time (s)		4.0			4.0			4.0				
Lane Grp Cap (vph)		1302			1461			1666				
v/s Ratio Prot					c0.30							
v/s Ratio Perm		0.24						0.40				
v/c Ratio		0.58			0.71			0.76				
Uniform Delay, d1		22.2			23.9			20.2				
Progression Factor		0.33			1.00			0.77				
Incremental Delay, d2		1.3			2.9			2.5				
Delay (s)		8.8			26.9			17.9				
Level of Service		A			C			B				
Approach Delay (s)		8.8			26.9			17.9			0.0	
Approach LOS		A			C			B			A	

Intersection Summary			
HCM Average Control Delay	18.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	75.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Bend Central Area Plan
Greenwood Avenue @ 3rd Street

2030 CAP with Added Trip Reductions

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.98		1.00	0.95		1.00	0.97		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3463		1770	3365		1770	3435		1770	3482	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3463		1770	3365		1770	3435		1770	3482	
Volume (vph)	415	980	165	405	775	380	165	1355	330	515	1320	160
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	451	1065	179	440	842	413	179	1473	359	560	1435	174
RTOR Reduction (vph)	0	8	0	0	35	0	0	13	0	0	5	0
Lane Group Flow (vph)	451	1236	0	440	1220	0	179	1819	0	560	1604	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases												
Actuated Green, G (s)	25.0	42.0		24.0	41.0		11.0	58.0		30.0	77.0	
Effective Green, g (s)	25.0	42.0		24.0	41.0		11.0	58.0		30.0	77.0	
Actuated g/C Ratio	0.15	0.25		0.14	0.24		0.06	0.34		0.18	0.45	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	2.5	2.5		2.5	2.5		2.5	4.3		2.5	4.3	
Lane Grp Cap (vph)	260	856		250	812		115	1172		312	1577	
v/s Ratio Prot	c0.25	0.36		0.25	c0.37		0.10	c0.53		c0.32	0.46	
v/s Ratio Perm												
v/c Ratio	1.73	1.44		1.76	1.50		1.56	1.55		1.79	1.02	
Uniform Delay, d1	72.5	64.0		73.0	64.5		79.5	56.0		70.0	46.5	
Progression Factor	1.00	1.00		1.00	1.00		0.73	0.95		0.81	0.94	
Incremental Delay, d2	346.2	206.2		357.9	232.6		271.6	250.8		358.9	11.6	
Delay (s)	418.7	270.2		430.9	297.1		329.5	304.3		415.5	55.1	
Level of Service	F	F		F	F		F	F		F	E	
Approach Delay (s)		309.7			331.8			306.6			148.2	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM Average Control Delay	267.6	HCM Level of Service	F
HCM Volume to Capacity ratio	1.59		
Actuated Cycle Length (s)	170.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	146.4%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Bend Central Area Plan
Oregon Street @ Wall Street

2030 CAP with Added Trip Reductions

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0						4.0	
Lane Util. Factor		1.00			1.00						0.95	
Frt		0.93			1.00						1.00	
Flt Protected		1.00			0.96						0.99	
Satd. Flow (prot)		1503			1552						3206	
Flt Permitted		1.00			0.74						0.99	
Satd. Flow (perm)		1503			1192						3206	
Volume (vph)	0	25	25	235	70	0	0	0	0	170	1030	25
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	27	27	255	76	0	0	0	0	185	1120	27
RTOR Reduction (vph)	0	16	0	0	0	0	0	0	0	0	1	0
Lane Group Flow (vph)	0	38	0	0	331	0	0	0	0	0	1331	0
Parking (#/hr)	7	7	7	7	7	7				14	14	14
Turn Type				Perm						Perm		
Protected Phases		2			6						4	
Permitted Phases				6						4		
Actuated Green, G (s)		41.0			41.0						51.0	
Effective Green, g (s)		41.0			41.0						51.0	
Actuated g/C Ratio		0.41			0.41						0.51	
Clearance Time (s)		4.0			4.0						4.0	
Lane Grp Cap (vph)		616			489						1635	
v/s Ratio Prot		0.04										
v/s Ratio Perm					c0.28						0.42	
v/c Ratio		0.06			0.68						0.81	
Uniform Delay, d1		17.9			24.1						20.5	
Progression Factor		1.00			0.83						0.42	
Incremental Delay, d2		0.2			5.7						2.2	
Delay (s)		18.0			25.6						10.8	
Level of Service		B			C						B	
Approach Delay (s)		18.0			25.6			0.0			10.8	
Approach LOS		B			C			A			B	

Intersection Summary			
HCM Average Control Delay	13.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	64.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0				
Lane Util. Factor		1.00			1.00			0.95				
Frt		1.00			0.92			0.98				
Flt Protected		0.98			1.00			0.99				
Satd. Flow (prot)		1817			1707			3447				
Flt Permitted		0.53			1.00			0.99				
Satd. Flow (perm)		990			1707			3447				
Volume (vph)	100	100	0	0	125	205	190	905	155	0	0	0
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	109	109	0	0	136	223	207	984	168	0	0	0
RTOR Reduction (vph)	0	0	0	0	59	0	0	11	0	0	0	0
Lane Group Flow (vph)	0	218	0	0	300	0	0	1348	0	0	0	0
Turn Type	Perm						Perm					
Protected Phases		2			6			8				
Permitted Phases	2						8					
Actuated Green, G (s)		37.4			37.4			54.6				
Effective Green, g (s)		37.4			37.4			54.6				
Actuated g/C Ratio		0.37			0.37			0.55				
Clearance Time (s)		4.0			4.0			4.0				
Lane Grp Cap (vph)		370			638			1882				
v/s Ratio Prot					0.21							
v/s Ratio Perm		c0.22						0.39				
v/c Ratio		0.59			0.47			0.72				
Uniform Delay, d1		25.1			23.8			16.9				
Progression Factor		1.55			1.00			0.15				
Incremental Delay, d2		4.8			2.5			1.0				
Delay (s)		43.7			26.3			3.5				
Level of Service		D			C			A				
Approach Delay (s)		43.7			26.3			3.5			0.0	
Approach LOS		D			C			A			A	

Intersection Summary			
HCM Average Control Delay	12.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	75.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Bend Central Area Plan
Franklin Avenue @ Wall Street

2030 CAP with Added Trip Reductions

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0						4.0	4.0
Lane Util. Factor		1.00		1.00	1.00						0.95	1.00
Frt		0.99		1.00	1.00						1.00	0.85
Flt Protected		1.00		0.95	1.00						0.99	1.00
Satd. Flow (prot)		1847		1770	1863						3487	1583
Flt Permitted		1.00		0.12	1.00						0.99	1.00
Satd. Flow (perm)		1847		218	1863						3487	1583
Volume (vph)	0	575	40	315	485	0	0	0	0	255	600	355
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	625	43	342	527	0	0	0	0	277	652	386
RTOR Reduction (vph)	0	2	0	0	0	0	0	0	0	0	0	246
Lane Group Flow (vph)	0	666	0	342	527	0	0	0	0	0	929	140
Turn Type				pm+pt						Perm		Perm
Protected Phases		8		7	4						6	
Permitted Phases				4						6		6
Actuated Green, G (s)		43.0		61.0	61.0						31.0	31.0
Effective Green, g (s)		43.0		61.0	61.0						31.0	31.0
Actuated g/C Ratio		0.43		0.61	0.61						0.31	0.31
Clearance Time (s)		4.0		4.0	4.0						4.0	4.0
Lane Grp Cap (vph)		794		350	1136						1081	491
v/s Ratio Prot		0.36		c0.14	0.28							
v/s Ratio Perm				c0.46							0.27	0.24
v/c Ratio		0.84		0.98	0.46						0.86	0.28
Uniform Delay, d1		25.4		27.1	10.6						32.5	26.1
Progression Factor		1.00		0.86	0.36						0.61	0.41
Incremental Delay, d2		10.3		22.3	0.4						5.7	0.9
Delay (s)		35.7		45.6	4.2						25.6	11.7
Level of Service		D		D	A						C	B
Approach Delay (s)		35.7			20.5			0.0			21.5	
Approach LOS		D			C			A			C	

Intersection Summary			
HCM Average Control Delay	24.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	90.1%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Bend Central Area Plan
Franklin Avenue @ Bond Street

2030 CAP with Added Trip Reductions

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0		4.0	4.0			
Lane Util. Factor	1.00	0.95			1.00	1.00		0.95	1.00			
Frt	1.00	1.00			1.00	0.85		1.00	0.85			
Flt Protected	0.95	1.00			1.00	1.00		0.99	1.00			
Satd. Flow (prot)	1770	3539			1863	1583		3521	1583			
Flt Permitted	0.09	1.00			1.00	1.00		0.99	1.00			
Satd. Flow (perm)	159	3539			1863	1583		3521	1583			
Volume (vph)	325	500	0	0	700	120	95	815	385	0	0	0
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	353	543	0	0	761	130	103	886	418	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	5	0	0	262	0	0	0
Lane Group Flow (vph)	353	543	0	0	761	125	0	989	156	0	0	0
Turn Type	pm+pt					custom	Perm		Perm			
Protected Phases	3	8			4			2				
Permitted Phases	8					8	2		2			
Actuated Green, G (s)	64.0	64.0			43.0	64.0		28.0	28.0			
Effective Green, g (s)	64.0	64.0			43.0	64.0		28.0	28.0			
Actuated g/C Ratio	0.64	0.64			0.43	0.64		0.28	0.28			
Clearance Time (s)	4.0	4.0			4.0	4.0		4.0	4.0			
Lane Grp Cap (vph)	376	2265			801	1013		986	443			
v/s Ratio Prot	c0.16	0.15			0.41							
v/s Ratio Perm	c0.44					0.08		0.28	0.26			
v/c Ratio	0.94	0.24			0.95	0.12		1.00	0.35			
Uniform Delay, d1	31.1	7.7			27.5	7.0		36.0	28.8			
Progression Factor	0.85	1.87			1.00	1.00		0.69	0.60			
Incremental Delay, d2	21.0	0.1			21.7	0.2		24.9	1.6			
Delay (s)	47.3	14.4			49.2	7.3		49.8	18.8			
Level of Service	D	B			D	A		D	B			
Approach Delay (s)		27.4			43.1			40.6			0.0	
Approach LOS		C			D			D			A	

Intersection Summary			
HCM Average Control Delay	37.6	HCM Level of Service	D
HCM Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	90.1%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	0.98		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3460		1770	3518		1770	3486	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3460		1770	3518		1770	3486	
Volume (vph)	370	705	165	200	455	80	200	1320	55	145	1445	160
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	402	766	179	217	495	87	217	1435	60	158	1571	174
RTOR Reduction (vph)	0	0	103	0	9	0	0	2	0	0	5	0
Lane Group Flow (vph)	402	766	76	217	573	0	217	1493	0	158	1740	0
Turn Type	Prot		Perm	Prot			Prot			Prot		
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases			4									
Actuated Green, G (s)	34.0	38.0	38.0	21.0	25.0		18.0	79.0		16.0	77.0	
Effective Green, g (s)	34.0	38.0	38.0	21.0	25.0		18.0	79.0		16.0	77.0	
Actuated g/C Ratio	0.20	0.22	0.22	0.12	0.15		0.11	0.46		0.09	0.45	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Lane Grp Cap (vph)	354	791	354	219	509		187	1635		167	1579	
v/s Ratio Prot	c0.23	c0.22		0.12	c0.17		c0.12	0.42		0.09	c0.50	
v/s Ratio Perm			0.11									
v/c Ratio	1.14	0.97	0.21	0.99	1.13		1.16	0.91		0.95	1.10	
Uniform Delay, d1	68.0	65.4	53.8	74.4	72.5		76.0	42.3		76.6	46.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		0.59	0.32	
Incremental Delay, d2	89.9	25.2	1.4	58.5	79.5		115.7	9.4		11.5	47.0	
Delay (s)	157.9	90.6	55.2	132.9	152.0		191.7	51.7		56.8	62.0	
Level of Service	F	F	E	F	F		F	D		E	E	
Approach Delay (s)		106.0			146.8			69.4			61.5	
Approach LOS		F			F			E			E	

Intersection Summary			
HCM Average Control Delay	86.1	HCM Level of Service	F
HCM Volume to Capacity ratio	1.14		
Actuated Cycle Length (s)	170.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	105.1%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0						4.0	
Lane Util. Factor					0.95						0.95	
Frt					1.00						0.96	
Flt Protected					0.99						1.00	
Satd. Flow (prot)					3287						3177	
Flt Permitted					0.99						1.00	
Satd. Flow (perm)					3287						3177	
Volume (vph)	0	0	0	170	740	0	0	0	0	0	545	215
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	185	804	0	0	0	0	0	592	234
RTOR Reduction (vph)	0	0	0	0	20	0	0	0	0	0	42	0
Lane Group Flow (vph)	0	0	0	0	969	0	0	0	0	0	784	0
Parking (#/hr)				5	5					5	5	
Turn Type				Perm								
Protected Phases					6						4	
Permitted Phases				6								
Actuated Green, G (s)					47.9						44.1	
Effective Green, g (s)					47.9						44.1	
Actuated g/C Ratio					0.48						0.44	
Clearance Time (s)					4.0						4.0	
Lane Grp Cap (vph)					1574						1401	
v/s Ratio Prot											c0.26	
v/s Ratio Perm					0.30							
v/c Ratio					0.62						0.56	
Uniform Delay, d1					19.2						20.7	
Progression Factor					0.26						1.36	
Incremental Delay, d2					1.1						0.7	
Delay (s)					6.0						28.9	
Level of Service					A						C	
Approach Delay (s)		0.0			6.0			0.0			28.9	
Approach LOS		A			A			A			C	

Intersection Summary			
HCM Average Control Delay	16.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	54.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0			4.0				
Lane Util. Factor					0.95			0.95				
Frt					0.96			1.00				
Flt Protected					1.00			0.99				
Satd. Flow (prot)					3149			3256				
Flt Permitted					1.00			0.99				
Satd. Flow (perm)					3149			3256				
Volume (vph)	0	0	0	0	795	270	115	920	0	0	0	0
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	864	293	125	1000	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	32	0	0	10	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	1125	0	0	1115	0	0	0	0
Parking (#/hr)				10	10	10	10	10	10			
Turn Type							Perm					
Protected Phases					6			8				
Permitted Phases							8					
Actuated Green, G (s)					46.0			46.0				
Effective Green, g (s)					46.0			46.0				
Actuated g/C Ratio					0.46			0.46				
Clearance Time (s)					4.0			4.0				
Lane Grp Cap (vph)					1449			1498				
v/s Ratio Prot					c0.37							
v/s Ratio Perm								0.35				
v/c Ratio					0.78			0.74				
Uniform Delay, d1					22.7			22.2				
Progression Factor					1.00			0.71				
Incremental Delay, d2					4.1			1.9				
Delay (s)					26.8			17.6				
Level of Service					C			B				
Approach Delay (s)		0.0			26.8			17.6			0.0	
Approach LOS		A			C			B			A	

Intersection Summary			
HCM Average Control Delay	22.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	66.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Bend Central Area Plan
Colorado Avenue at Bend Parkway SB Ramp

2030 CAP with Added Trip Reductions

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0			4.0	4.0	4.0		4.0
Lane Util. Factor					1.00			1.00	1.00	1.00		1.00
Frt					0.98			1.00	0.85	1.00		0.85
Flt Protected					1.00			1.00	1.00	0.95		1.00
Satd. Flow (prot)					1830			1861	1583	1770		1583
Flt Permitted					1.00			1.00	1.00	0.42		1.00
Satd. Flow (perm)					1830			1861	1583	777		1583
Volume (vph)	0	0	0	5	515	75	5	215	920	130	0	460
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	5	560	82	5	234	1000	141	0	500
RTOR Reduction (vph)	0	0	0	0	4	0	0	0	198	0	0	93
Lane Group Flow (vph)	0	0	0	0	643	0	0	239	802	141	0	407
Turn Type				custom			Split		custom	D.P+P		custom
Protected Phases				8	8		6	6	6 8	2		2
Permitted Phases				8					6 8	6		6
Actuated Green, G (s)					47.6			30.6	82.2	60.4		60.4
Effective Green, g (s)					47.6			30.6	82.2	60.4		60.4
Actuated g/C Ratio					0.40			0.26	0.69	0.50		0.50
Clearance Time (s)					4.0			4.0		4.0		4.0
Vehicle Extension (s)					3.0			3.0		3.0		3.0
Lane Grp Cap (vph)					726			475	1084	638		850
v/s Ratio Prot					0.35			0.13	c0.63	0.05		c0.15
v/s Ratio Perm										0.06		0.17
v/c Ratio					0.89			0.50	0.74	0.22		0.48
Uniform Delay, d1					33.7			38.2	12.1	16.5		19.5
Progression Factor					1.00			1.00	1.00	1.00		1.00
Incremental Delay, d2					12.5			0.8	2.8	0.2		0.4
Delay (s)					46.1			39.0	14.8	16.7		19.9
Level of Service					D			D	B	B		B
Approach Delay (s)		0.0			46.1			19.5			19.2	
Approach LOS		A			D			B			B	

Intersection Summary			
HCM Average Control Delay	26.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	82.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Bend Central Area Plan
Arizona Avenue at Wall Street

2030 CAP with Added Trip Reductions

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0									4.0	
Lane Util. Factor		0.95									0.95	
Frt		1.00									1.00	
Flt Protected		1.00									0.98	
Satd. Flow (prot)		3304									3213	
Flt Permitted		1.00									0.98	
Satd. Flow (perm)		3304									3213	
Volume (vph)	0	1230	35	0	0	0	0	0	0	270	445	0
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1337	38	0	0	0	0	0	0	293	484	0
RTOR Reduction (vph)	0	2	0	0	0	0	0	0	0	0	24	0
Lane Group Flow (vph)	0	1373	0	0	0	0	0	0	0	0	753	0
Parking (#/hr)			5	5						10	10	10
Turn Type										Perm		
Protected Phases		2									4	
Permitted Phases										4		
Actuated Green, G (s)		54.1									37.9	
Effective Green, g (s)		54.1									37.9	
Actuated g/C Ratio		0.54									0.38	
Clearance Time (s)		4.0									4.0	
Lane Grp Cap (vph)		1787									1218	
v/s Ratio Prot		c0.42										
v/s Ratio Perm											0.24	
v/c Ratio		0.77									0.62	
Uniform Delay, d1		18.0									25.2	
Progression Factor		0.69									0.35	
Incremental Delay, d2		2.9									1.9	
Delay (s)		15.4									10.9	
Level of Service		B									B	
Approach Delay (s)		15.4			0.0			0.0			10.9	
Approach LOS		B			A			A			B	

Intersection Summary			
HCM Average Control Delay	13.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	61.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0						4.0				
Lane Util. Factor		0.95						0.95				
Frt		1.00						0.96				
Flt Protected		0.98						1.00				
Satd. Flow (prot)		3219						3138				
Flt Permitted		0.98						1.00				
Satd. Flow (perm)		3219						3138				
Volume (vph)	515	1000	0	0	0	0	0	520	200	0	0	0
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	560	1087	0	0	0	0	0	565	217	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	40	0	0	0	0
Lane Group Flow (vph)	0	1647	0	0	0	0	0	742	0	0	0	0
Parking (#/hr)	10	10	10				10	10	10			
Turn Type	Perm						Perm					
Protected Phases		2						8				
Permitted Phases	2						8					
Actuated Green, G (s)		61.0						31.0				
Effective Green, g (s)		61.0						31.0				
Actuated g/C Ratio		0.61						0.31				
Clearance Time (s)		4.0						4.0				
Lane Grp Cap (vph)		1964						973				
v/s Ratio Prot								c0.25				
v/s Ratio Perm		0.51										
v/c Ratio		0.84						0.76				
Uniform Delay, d1		15.6						31.2				
Progression Factor		0.42						1.00				
Incremental Delay, d2		3.0						5.6				
Delay (s)		9.6						36.8				
Level of Service		A						D				
Approach Delay (s)		9.6			0.0			36.8			0.0	
Approach LOS		A			A			D			A	

Intersection Summary			
HCM Average Control Delay	18.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	70.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		Y	
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	0	730	885	0	495	250
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	793	962	0	538	272
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					TWLTL	
Median storage veh)					1	
Upstream signal (ft)		461				
pX, platoon unblocked					0.87	
vC, conflicting volume	962				1755	962
vC1, stage 1 conf vol					962	
vC2, stage 2 conf vol					793	
vCu, unblocked vol	962				1864	962
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)	2.2				3.5	3.3
p0 queue free %	100				0	12
cM capacity (veh/h)	715				208	310

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	793	962	810
Volume Left	0	0	538
Volume Right	0	0	272
cSH	1700	1700	234
Volume to Capacity	0.47	0.57	3.46
Queue Length (ft)	0	0	Err
Control Delay (s)	0.0	0.0	Err
Lane LOS			F
Approach Delay (s)	0.0	0.0	Err
Approach LOS			F

Intersection Summary			
Average Delay	3156.5		
Intersection Capacity Utilization	96.0%	ICU Level of Service	F
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	110	1100	15	10	860	305	25	5	35	0	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	120	1196	16	11	935	332	27	5	38	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								TWLTL			None	
Median storage veh)								1				
Upstream signal (ft)		910										
pX, platoon unblocked				0.89			0.89	0.89	0.89	0.89	0.89	
vC, conflicting volume	1266			1212			2399	2731	1204	2598	2573	1101
vC1, stage 1 conf vol							1443	1443				
vC2, stage 2 conf vol							957	1288				
vCu, unblocked vol	1266			1239			2579	2953	1230	2803	2776	1101
tC, single (s)	4.1			4.1			*6.4	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							5.4	5.5				
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	78			98			0	91	80	100	100	100
cM capacity (veh/h)	549			498			21	58	192	6	13	258

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	120	1212	11	1266	71
Volume Left	120	0	11	0	27
Volume Right	0	16	0	332	38
cSH	549	1700	498	1700	44
Volume to Capacity	0.22	0.71	0.02	0.74	1.60
Queue Length (ft)	21	0	2	0	177
Control Delay (s)	13.4	0.0	12.4	0.0	499.0
Lane LOS	B		B		F
Approach Delay (s)	1.2		0.1		499.0
Approach LOS					F

Intersection Summary			
Average Delay	13.8		
Intersection Capacity Utilization	83.7%	ICU Level of Service	E
Analysis Period (min)	15		

* User Entered Value

Bend Central Area Plan
Butler Market Road @ 4th Street

2030 CAP with Added Trip Reductions

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	880	255	130	790	0	340	0	95	0	20	45
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	957	277	141	859	0	370	0	103	0	22	49
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								TWLTL			None	
Median storage veh)								1				
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	859			1234			2296	2236	1095	2201	2375	859
vC1, stage 1 conf vol							1095	1095				
vC2, stage 2 conf vol							1201	1141				
vCu, unblocked vol	859			1234			2296	2236	1095	2201	2375	859
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5				
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			75			0	100	60	100	16	86
cM capacity (veh/h)	782			565			6	124	260	16	26	356

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1
Volume Total	0	1234	141	859	370	103	71
Volume Left	0	0	141	0	370	0	0
Volume Right	0	277	0	0	0	103	49
cSH	1700	1700	565	1700	6	260	72
Volume to Capacity	0.00	0.73	0.25	0.51	62.66	0.40	0.97
Queue Length (ft)	0	0	25	0	Err	45	126
Control Delay (s)	0.0	0.0	13.5	0.0	Err	27.7	196.7
Lane LOS			B		F	D	F
Approach Delay (s)	0.0		1.9		7821.4		196.7
Approach LOS					F		F

Intersection Summary			
Average Delay	1337.3		
Intersection Capacity Utilization	104.5%	ICU Level of Service	G
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	15	20	15	405	25	70	5	435	335	100	655	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	16	22	16	440	27	76	5	473	364	109	712	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1685	1777	712	1622	1595	655	712			837		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1685	1777	712	1622	1595	655	712			837		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	62	69	96	0	70	84	99			86		
cM capacity (veh/h)	43	71	432	54	92	466	888			797		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	54	543	842	821
Volume Left	16	440	5	109
Volume Right	16	76	364	0
cSH	75	63	888	797
Volume to Capacity	0.72	8.57	0.01	0.14
Queue Length (ft)	85	Err	0	12
Control Delay (s)	130.1	Err	0.2	3.4
Lane LOS	F	F	A	A
Approach Delay (s)	130.1	Err	0.2	3.4
Approach LOS	F	F		

Intersection Summary			
Average Delay	2408.0		
Intersection Capacity Utilization	128.3%	ICU Level of Service	H
Analysis Period (min)	15		

Bend Central Area Plan
Revere Avenue @ 4th Street

2030 CAP with Added Trip Reductions

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	315	410	165	30	445	115	105	295	55	270	335	475
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	342	446	179	33	484	125	114	321	60	293	364	516

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1	SB 2
Volume Total (vph)	342	625	33	609	495	658	516
Volume Left (vph)	342	0	33	0	114	293	0
Volume Right (vph)	0	179	0	125	60	0	516
Hadj (s)	0.5	-0.2	0.5	-0.1	0.0	0.3	-0.7
Departure Headway (s)	9.8	9.1	9.8	9.2	9.7	9.6	8.6
Degree Utilization, x	0.94	1.59	0.09	1.55	1.34	1.74	1.24
Capacity (veh/h)	360	398	353	403	378	381	423
Control Delay (s)	24.5	82.4	11.9	79.1	58.6	100.4	45.7
Approach Delay (s)	61.9		75.7		58.6	76.3	
Approach LOS	F		F		F	F	

Intersection Summary			
Delay	69.3		
HCM Level of Service	F		
Intersection Capacity Utilization	118.4%	ICU Level of Service	H
Analysis Period (min)	15		

Bend Central Area Plan
Oleny Avenue @ 4th Street

2030 CAP with Added Trip Reductions

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	145	565	65	70	515	55	60	270	95	150	215	110
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	158	614	71	76	560	60	65	293	103	163	234	120

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total (vph)	158	685	76	620	462	516
Volume Left (vph)	158	0	76	0	65	163
Volume Right (vph)	0	71	0	60	103	120
Hadj (s)	0.5	0.0	0.5	0.0	-0.1	0.0
Departure Headway (s)	9.8	9.2	9.8	9.3	9.1	9.1
Degree Utilization, x	0.43	1.76	0.21	1.59	1.16	1.30
Capacity (veh/h)	354	395	358	392	402	404
Control Delay (s)	13.4	101.2	12.3	83.6	40.6	54.0
Approach Delay (s)	84.7		75.8		40.6	54.0
Approach LOS	F		F		E	F

Intersection Summary			
Delay	67.9		
HCM Level of Service	F		
Intersection Capacity Utilization	98.9%	ICU Level of Service	F
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	10	250	0	0	780	10	80	20	570	20	0	50
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	11	272	0	0	848	11	87	22	620	22	0	54
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)		563			155							
pX, platoon unblocked												
vC, conflicting volume	859			272			1201	1152	272	1777	1147	853
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	859			272			1201	1152	272	1777	1147	853
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			100			36	89	19	0	100	85
cM capacity (veh/h)	782			1292			136	195	767	11	196	359

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total	283	859	109	620	76
Volume Left	11	0	87	0	22
Volume Right	0	11	0	620	54
cSH	782	1700	144	767	36
Volume to Capacity	0.01	0.51	0.75	0.81	2.10
Queue Length (ft)	1	0	113	215	210
Control Delay (s)	0.5	0.0	81.6	26.3	745.3
Lane LOS	A		F	D	F
Approach Delay (s)	0.5	0.0	34.5		745.3
Approach LOS			D		F

Intersection Summary				
Average Delay	42.1			
Intersection Capacity Utilization	63.2%	ICU Level of Service	B	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	35	1770	30	160	1405	220	0	0	155	0	0	170
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	38	1924	33	174	1527	239	0	0	168	0	0	185
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)		495										
pX, platoon unblocked												
vC, conflicting volume	1766			1957			3312	4130	978	3201	4027	883
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1766			1957			3312	4130	978	3201	4027	883
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	89			41			100	100	33	100	100	36
cM capacity (veh/h)	349			294			1	1	250	1	1	289

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	38	1283	674	174	1018	748	168	185
Volume Left	38	0	0	174	0	0	0	0
Volume Right	0	0	33	0	0	239	168	185
cSH	349	1700	1700	294	1700	1700	250	289
Volume to Capacity	0.11	0.75	0.40	0.59	0.60	0.44	0.67	0.64
Queue Length (ft)	9	0	0	88	0	0	109	101
Control Delay (s)	16.6	0.0	0.0	33.5	0.0	0.0	44.9	37.2
Lane LOS	C			D			E	E
Approach Delay (s)	0.3			3.0			44.9	37.2
Approach LOS							E	E

Intersection Summary			
Average Delay	4.9		
Intersection Capacity Utilization	66.1%	ICU Level of Service	C
Analysis Period (min)	15		

Bend Central Area Plan
Hawthorne Avenue @ 3rd Street

2030 CAP with Added Trip Reductions

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	210	30	30	5	45	55	75	1620	40	70	1695	115
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	228	33	33	5	49	60	82	1761	43	76	1842	125
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh)		1			1							
Upstream signal (ft)								745			734	
pX, platoon unblocked												
vC, conflicting volume	3185	4024	984	3068	4065	902	1967			1804		
vC1, stage 1 conf vol	2057	2057		1946	1946							
vC2, stage 2 conf vol	1128	1967		1122	2120							
vCu, unblocked vol	3185	4024	984	3068	4065	902	1967			1804		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		6.5	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	0	87	0	0	79	72			77		
cM capacity (veh/h)	0	2	248	1	1	281	291			337		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	293	114	82	1174	630	76	1228	739
Volume Left	228	5	82	0	0	76	0	0
Volume Right	33	60	0	0	43	0	0	125
cSH	0	3	291	1700	1700	337	1700	1700
Volume to Capacity	Err	38.43	0.28	0.69	0.37	0.23	0.72	0.43
Queue Length (ft)	Err	Err	28	0	0	21	0	0
Control Delay (s)	Err	Err	22.1	0.0	0.0	18.7	0.0	0.0
Lane LOS	F	F	C			C		
Approach Delay (s)	Err	Err	1.0			0.7		
Approach LOS	F	F						

Intersection Summary				
Average Delay	Err			
Intersection Capacity Utilization	86.4%	ICU Level of Service	E	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	70	30	30	5	30	5	25	95	5	15	140	55
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	76	33	33	5	33	5	27	103	5	16	152	60
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	397	378	182	424	405	106	212			109		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	397	378	182	424	405	106	212			109		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	85	94	96	99	94	99	98			99		
cM capacity (veh/h)	521	537	860	484	518	948	1358			1482		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	141	43	136	228
Volume Left	76	5	27	16
Volume Right	33	5	5	60
cSH	577	544	1358	1482
Volume to Capacity	0.24	0.08	0.02	0.01
Queue Length (ft)	24	6	2	1
Control Delay (s)	13.2	12.2	1.7	0.6
Lane LOS	B	B	A	A
Approach Delay (s)	13.2	12.2	1.7	0.6
Approach LOS	B	B		

Intersection Summary			
Average Delay	5.0		
Intersection Capacity Utilization	33.7%	ICU Level of Service	A
Analysis Period (min)	15		

Bend Central Area Plan
Franklin Avenue @ 4th Street

2030 CAP with Added Trip Reductions

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	80	750	55	25	540	25	30	30	50	15	25	145
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	87	815	60	27	587	27	33	33	54	16	27	158
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)		490										
pX, platoon unblocked				0.80			0.80	0.80	0.80	0.80	0.80	
vC, conflicting volume	614			875			1538	1688	438	1307	1704	307
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	614			585			1419	1607	35	1129	1627	307
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	91			97			14	55	93	77	61	77
cM capacity (veh/h)	961			784			38	73	819	70	71	689

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	87	543	332	27	391	223	120	201
Volume Left	87	0	0	27	0	0	33	16
Volume Right	0	0	60	0	0	27	54	158
cSH	961	1700	1700	784	1700	1700	87	237
Volume to Capacity	0.09	0.32	0.20	0.03	0.23	0.13	1.37	0.85
Queue Length (ft)	7	0	0	3	0	0	226	168
Control Delay (s)	9.1	0.0	0.0	9.8	0.0	0.0	311.5	69.2
Lane LOS	A			A			F	F
Approach Delay (s)	0.8			0.4			311.5	69.2
Approach LOS							F	F

Intersection Summary			
Average Delay	27.1		
Intersection Capacity Utilization	50.1%	ICU Level of Service	A
Analysis Period (min)	15		

Bend Central Area Plan
Tumalo Avenue @ Riverside Drive

2030 CAP with Added Trip Reductions

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	470	315	50	0	350	10	50	5	5	20	35	690
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	511	342	54	0	380	11	54	5	5	22	38	750

Direction, Lane #	EB 1	WB 1	NB 1	SB 1	SB 2
Volume Total (vph)	908	391	65	60	750
Volume Left (vph)	511	0	54	22	0
Volume Right (vph)	54	11	5	0	750
Hadj (s)	0.1	0.0	0.2	0.2	-0.7
Departure Headway (s)	6.9	6.6	8.7	7.6	6.7
Degree Utilization, x	1.75	0.72	0.16	0.13	1.40
Capacity (veh/h)	524	507	375	464	550
Control Delay (s)	98.2	13.3	12.1	9.7	58.5
Approach Delay (s)	98.2	13.3	12.1	54.9	
Approach LOS	F	B	B	F	

Intersection Summary			
Delay	64.2		
HCM Level of Service	F		
Intersection Capacity Utilization	84.7%	ICU Level of Service	E
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	835	215	290	645	30	305
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	908	234	315	701	33	332
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)		818				
pX, platoon unblocked						
vC, conflicting volume	1016				2715	666
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1016				2715	666
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	0				0	28
cM capacity (veh/h)	683				0	460

Direction, Lane #	EB 1	EB 2	WB 1	SB 1	SB 2
Volume Total	908	234	1016	33	332
Volume Left	908	0	0	33	0
Volume Right	0	0	701	0	332
cSH	683	1700	1700	0	460
Volume to Capacity	1.33	0.14	0.60	Err	0.72
Queue Length (ft)	932	0	0	Err	143
Control Delay (s)	177.6	0.0	0.0	Err	30.6
Lane LOS	F			F	D
Approach Delay (s)	141.2		0.0	Err	
Approach LOS				F	

Intersection Summary			
Average Delay	Err		
Intersection Capacity Utilization	114.5%	ICU Level of Service	H
Analysis Period (min)	15		

APPENDIX D

2030 Central Area Plan Intersection Traffic Operations Analysis Worksheets for Second Hour in Peak Period

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00		1.00	0.95		1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.91		1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	3433	1700		1770	3471		1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	1863	1583	3433	1700		1770	3471		1770	3539	1583
Volume (vph)	150	220	250	620	215	300	250	1600	235	280	1935	110
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor (vph)	82%	82%	82%	82%	82%	82%	82%	82%	82%	82%	82%	82%
Adj. Flow (vph)	134	196	223	553	192	267	223	1426	209	250	1725	98
RTOR Reduction (vph)	0	0	186	0	46	0	0	10	0	0	0	39
Lane Group Flow (vph)	134	196	37	553	413	0	223	1625	0	250	1725	59
Turn Type	Prot		Perm	Prot			Prot			Prot		Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases			8									2
Actuated Green, G (s)	7.0	12.0	12.0	18.0	23.0		13.5	49.0		14.5	50.0	50.0
Effective Green, g (s)	7.0	12.0	12.0	18.0	23.0		13.0	50.0		14.0	51.0	51.0
Actuated g/C Ratio	0.06	0.11	0.11	0.16	0.21		0.12	0.45		0.13	0.46	0.46
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		3.5	5.0		3.5	5.0	5.0
Lane Grp Cap (vph)	113	203	173	562	355		209	1578		225	1641	734
v/s Ratio Prot	0.08	0.11		c0.16	c0.27		0.13	c0.47		0.14	c0.49	
v/s Ratio Perm			0.14									0.06
v/c Ratio	1.19	0.97	0.21	0.98	1.16		1.07	1.03		1.11	1.05	0.08
Uniform Delay, d1	51.5	48.8	44.7	45.9	43.5		48.5	30.0		48.0	29.5	16.4
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	143.1	54.8	2.8	34.2	100.2		81.1	30.6		93.0	37.0	0.2
Delay (s)	194.6	103.6	47.5	80.1	143.7		129.6	60.6		141.0	66.5	16.7
Level of Service	F	F	D	F	F		F	E		F	E	B
Approach Delay (s)		103.0			108.9			68.9			73.2	
Approach LOS		F			F			E			E	

Intersection Summary			
HCM Average Control Delay	81.3	HCM Level of Service	F
HCM Volume to Capacity ratio	1.09		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	99.7%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Bend Central Area Plan
Revere Avenue @ SB Parkway Ramp

2030 CAP with Added Trip Reductions
2nd Highest Hour in Peak Period

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor		1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt		0.97		1.00	0.87		1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.98		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1775		1770	1620		1770	1863	1583	1770	1858	
Flt Permitted		0.98		0.95	1.00		0.47	1.00	1.00	0.57	1.00	
Satd. Flow (perm)		1775		1770	1620		873	1863	1583	1059	1858	
Volume (vph)	15	20	10	720	65	435	20	220	960	255	300	5
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor (vph)	88%	88%	88%	88%	88%	88%	88%	88%	88%	88%	88%	88%
Adj. Flow (vph)	14	19	10	689	62	416	19	210	918	244	287	5
RTOR Reduction (vph)	0	9	0	0	246	0	0	0	188	0	1	0
Lane Group Flow (vph)	0	34	0	689	232	0	19	210	730	244	291	0
Turn Type	Split			Split			Perm		pm+ov	Perm		
Protected Phases	7	7		3	3			6	3		2	
Permitted Phases							6		6	2		
Actuated Green, G (s)		6.0		34.8	34.8		32.2	32.2	67.0	32.2	32.2	
Effective Green, g (s)		6.0		34.8	34.8		32.2	32.2	67.0	32.2	32.2	
Actuated g/C Ratio		0.07		0.41	0.41		0.38	0.38	0.79	0.38	0.38	
Clearance Time (s)		4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)		2.5		2.5	2.5		4.3	4.3	2.5	4.3	4.3	
Lane Grp Cap (vph)		125		725	663		331	706	1322	401	704	
v/s Ratio Prot		c0.02		c0.39	0.30			0.11	c0.28		0.16	
v/s Ratio Perm							0.02		0.30	0.23		
v/c Ratio		0.27		0.95	0.35		0.06	0.30	0.55	0.61	0.41	
Uniform Delay, d1		37.4		24.3	17.3		16.8	18.5	3.4	21.3	19.4	
Progression Factor		1.00		0.90	0.42		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.8		18.8	0.2		0.3	1.1	0.4	6.7	1.8	
Delay (s)		38.3		40.6	7.4		17.1	19.6	3.8	28.0	21.2	
Level of Service		D		D	A		B	B	A	C	C	
Approach Delay (s)		38.3			27.0			6.9			24.3	
Approach LOS		D			C			A			C	

Intersection Summary			
HCM Average Control Delay	18.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	83.1%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Bend Central Area Plan
Revere Avenue @ NB Parkway Ramp

2030 CAP with Added Trip Reductions
2nd Highest Hour in Peak Period

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0			4.0	4.0	4.0	4.0	4.0
Lane Util. Factor		0.95	1.00		0.95			1.00	1.00	1.00	1.00	1.00
Frt		1.00	0.85		0.97			1.00	0.85	1.00	1.00	0.85
Flt Protected		0.99	1.00		1.00			0.99	1.00	0.95	1.00	1.00
Satd. Flow (prot)		3488	1583		3433			1835	1583	1770	1863	1583
Flt Permitted		0.54	1.00		0.87			0.90	1.00	0.95	1.00	1.00
Satd. Flow (perm)		1897	1583		2992			1670	1583	1770	1863	1583
Volume (vph)	190	460	585	60	680	160	160	370	600	160	5	380
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor (vph)	88%	88%	88%	88%	88%	88%	88%	88%	88%	88%	88%	88%
Adj. Flow (vph)	182	440	560	57	650	153	153	354	574	153	5	363
RTOR Reduction (vph)	0	0	325	0	22	0	0	0	165	0	0	70
Lane Group Flow (vph)	0	622	235	0	838	0	0	507	409	153	5	293
Turn Type	Perm		Perm	Perm			Perm		Perm	Prot		Perm
Protected Phases		2			6			8		7	4	
Permitted Phases	2		2	6			8		8			4
Actuated Green, G (s)		35.6	35.6		35.6			27.8	27.8	9.6	41.4	41.4
Effective Green, g (s)		35.6	35.6		35.6			27.8	27.8	9.6	41.4	41.4
Actuated g/C Ratio		0.42	0.42		0.42			0.33	0.33	0.11	0.49	0.49
Clearance Time (s)		4.0	4.0		4.0			4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)		2.5	2.5		2.5			2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)		795	663		1253			546	518	200	907	771
v/s Ratio Prot										c0.09	0.00	
v/s Ratio Perm		0.33	0.35		0.29			0.30	0.36			0.23
v/c Ratio		1.12dl	0.35		0.67			0.93	0.79	0.77	0.01	0.38
Uniform Delay, d1		21.4	16.9		19.9			27.6	25.9	36.6	11.2	13.7
Progression Factor		0.78	0.08		0.38			1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		5.3	1.0		0.1			21.8	7.3	14.4	0.0	0.1
Delay (s)		22.1	2.4		7.7			49.5	33.2	51.0	11.2	13.8
Level of Service		C	A		A			D	C	D	B	B
Approach Delay (s)		12.8			7.7			40.9			24.7	
Approach LOS		B			A			D			C	

Intersection Summary			
HCM Average Control Delay	21.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	84.7%	ICU Level of Service	E
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.
c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		0.91	0.91		1.00	0.95		1.00	0.95	
Frt	1.00	0.95		1.00	0.98		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3365		1610	3314		1770	3491		1770	3498	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3365		1610	3314		1770	3491		1770	3498	
Volume (vph)	280	605	295	375	560	90	225	1765	175	110	1245	105
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor (vph)	88%	88%	88%	88%	88%	88%	88%	88%	88%	88%	88%	88%
Adj. Flow (vph)	268	579	282	359	536	86	215	1688	167	105	1191	100
RTOR Reduction (vph)	0	40	0	0	7	0	0	5	0	0	4	0
Lane Group Flow (vph)	268	821	0	318	656	0	215	1850	0	105	1287	0
Turn Type	Split			Split			Prot			Prot		
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	31.0	31.0		26.0	26.0		18.0	69.0		8.0	59.0	
Effective Green, g (s)	31.0	31.0		26.0	26.0		18.0	69.0		8.0	59.0	
Actuated g/C Ratio	0.21	0.21		0.17	0.17		0.12	0.46		0.05	0.39	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	2.5	2.5		2.5	2.5		2.5	4.3		2.5	4.3	
Lane Grp Cap (vph)	366	695		279	574		212	1606		94	1376	
v/s Ratio Prot	0.15	c0.26		0.20	c0.20		0.12	c0.53		0.06	c0.37	
v/s Ratio Perm												
v/c Ratio	0.73	1.18		1.14	1.14		1.01	1.15		1.12	0.94	
Uniform Delay, d1	55.6	59.5		62.0	62.0		66.0	40.5		71.0	43.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	7.0	96.1		97.0	83.3		65.5	76.0		127.9	13.0	
Delay (s)	62.6	155.6		159.0	145.3		131.5	116.5		198.9	56.7	
Level of Service	E	F		F	F		F	F		F	E	
Approach Delay (s)		133.5			149.7			118.1			67.4	
Approach LOS		F			F			F			E	

Intersection Summary			
HCM Average Control Delay	114.1	HCM Level of Service	F
HCM Volume to Capacity ratio	1.17		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	106.7%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.96		1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	1781		1770	1863	1583	1770	1812		1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.32	1.00		0.07	1.00	1.00
Satd. Flow (perm)	1770	1781		1770	1863	1583	601	1812		138	1863	1583
Volume (vph)	370	325	135	115	390	150	200	745	165	80	450	480
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor (vph)	84%	84%	84%	84%	84%	84%	84%	84%	84%	84%	84%	84%
Adj. Flow (vph)	338	297	123	105	356	137	183	680	151	73	411	438
RTOR Reduction (vph)	0	12	0	0	0	111	0	6	0	0	0	254
Lane Group Flow (vph)	338	408	0	105	356	26	183	825	0	73	411	184
Turn Type	Prot			Prot		Perm	pm+pt			pm+pt		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8	2			6		6
Actuated Green, G (s)	24.8	32.8		16.1	24.1	24.1	67.8	59.1		58.8	54.1	54.1
Effective Green, g (s)	25.0	32.8		16.3	24.1	24.1	67.8	59.1		58.8	54.1	54.1
Actuated g/C Ratio	0.19	0.25		0.13	0.19	0.19	0.53	0.46		0.46	0.42	0.42
Clearance Time (s)	4.2	4.0		4.2	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	2.5	2.5		2.5	2.5	2.5	3.0	4.2		2.5	4.2	4.2
Lane Grp Cap (vph)	343	453		224	348	296	404	831		122	782	664
v/s Ratio Prot	c0.19	c0.24		0.06	c0.19		c0.03	c0.46		0.02	0.22	
v/s Ratio Perm						0.09	0.20			0.25		0.28
v/c Ratio	0.99	0.90		0.47	1.02	0.09	0.45	0.99		0.60	0.53	0.28
Uniform Delay, d1	51.8	46.5		52.3	52.4	43.3	18.5	34.7		30.2	27.8	24.6
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	44.3	20.7		1.1	54.2	0.1	0.8	29.3		6.5	0.9	0.3
Delay (s)	96.1	67.2		53.4	106.6	43.4	19.3	64.0		36.7	28.8	24.9
Level of Service	F	E		D	F	D	B	E		D	C	C
Approach Delay (s)		80.1			82.8			56.0			27.6	
Approach LOS		F			F			E			C	

Intersection Summary			
HCM Average Control Delay	58.4	HCM Level of Service	E
HCM Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	128.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	94.2%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.96		1.00	0.96		1.00	0.99		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1784		1770	1793		1770	3496		1770	3527	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1784		1770	1793		1770	3496		1770	3527	
Volume (vph)	175	395	155	190	390	130	150	1880	165	200	1700	40
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor (vph)	92%	92%	92%	92%	92%	92%	92%	92%	92%	92%	92%	92%
Adj. Flow (vph)	175	395	155	190	390	130	150	1880	165	200	1700	40
RTOR Reduction (vph)	0	10	0	0	8	0	0	5	0	0	1	0
Lane Group Flow (vph)	175	540	0	190	512	0	150	2040	0	200	1739	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	11.5	34.0		12.5	35.0		11.5	65.0		12.5	66.0	
Effective Green, g (s)	11.0	34.0		12.0	35.0		11.0	66.0		12.0	67.0	
Actuated g/C Ratio	0.08	0.24		0.09	0.25		0.08	0.47		0.09	0.48	
Clearance Time (s)	3.5	4.0		3.5	4.0		3.5	5.0		3.5	5.0	
Vehicle Extension (s)	2.5	2.5		2.5	2.5		2.5	4.8		2.5	4.8	
Lane Grp Cap (vph)	139	433		152	448		139	1648		152	1688	
v/s Ratio Prot	0.10	c0.31		c0.11	0.29		0.08	c0.58		c0.11	0.49	
v/s Ratio Perm												
v/c Ratio	1.26	1.25		1.25	1.14		1.08	1.24		1.32	1.03	
Uniform Delay, d1	64.5	53.0		64.0	52.5		64.5	37.0		64.0	36.5	
Progression Factor	1.00	1.00		1.00	1.00		0.61	0.69		1.00	1.00	
Incremental Delay, d2	161.9	129.4		155.4	87.6		47.5	107.6		180.9	30.0	
Delay (s)	226.4	182.4		219.4	140.1		86.7	133.1		244.9	66.5	
Level of Service	F	F		F	F		F	F		F	E	
Approach Delay (s)		193.0			161.3			129.9			84.9	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM Average Control Delay	126.5	HCM Level of Service	F
HCM Volume to Capacity ratio	1.18		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	113.7%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0						4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	1.00						0.95	1.00
Frt	1.00	0.96		1.00	0.99						1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00						0.99	1.00
Satd. Flow (prot)	1770	3396		1770	1845						3505	1583
Flt Permitted	0.95	1.00		0.95	1.00						0.99	1.00
Satd. Flow (perm)	1770	3396		1770	1845						3505	1583
Volume (vph)	150	540	200	390	680	45	0	0	0	150	630	145
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor (vph)	84%	84%	84%	84%	84%	84%	84%	84%	84%	84%	84%	84%
Adj. Flow (vph)	137	493	183	356	621	41	0	0	0	137	575	132
RTOR Reduction (vph)	0	38	0	0	3	0	0	0	0	0	0	99
Lane Group Flow (vph)	137	638	0	356	659	0	0	0	0	0	712	33
Turn Type	Prot			Prot						Perm		Perm
Protected Phases	5	2		1	6						4	
Permitted Phases										4		4
Actuated Green, G (s)	14.0	35.0		28.0	49.0						25.0	25.0
Effective Green, g (s)	14.0	35.0		28.0	49.0						25.0	25.0
Actuated g/C Ratio	0.14	0.35		0.28	0.49						0.25	0.25
Clearance Time (s)	4.0	4.0		4.0	4.0						4.0	4.0
Lane Grp Cap (vph)	248	1189		496	904						876	396
v/s Ratio Prot	0.08	0.20		c0.20	c0.36							
v/s Ratio Perm											0.20	0.08
v/c Ratio	0.55	0.54		0.72	0.73						0.81	0.08
Uniform Delay, d1	40.1	26.0		32.4	20.2						35.3	28.7
Progression Factor	1.00	1.00		0.76	0.43						1.00	1.00
Incremental Delay, d2	8.6	1.7		5.9	3.5						8.1	0.4
Delay (s)	48.7	27.7		30.4	12.2						43.4	29.1
Level of Service	D	C		C	B						D	C
Approach Delay (s)		31.3			18.6			0.0			41.2	
Approach LOS		C			B			A			D	

Intersection Summary			
HCM Average Control Delay	29.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	67.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0				
Lane Util. Factor		0.95			0.95			0.95				
Frt		1.00			0.98			0.95				
Flt Protected		1.00			1.00			0.99				
Satd. Flow (prot)		3534			3478			3332				
Flt Permitted		0.92			1.00			0.99				
Satd. Flow (perm)		3264			3478			3332				
Volume (vph)	20	675	0	0	850	110	265	560	390	0	0	0
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor (vph)	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%
Adj. Flow (vph)	17	587	0	0	739	96	230	487	339	0	0	0
RTOR Reduction (vph)	0	0	0	0	10	0	0	56	0	0	0	0
Lane Group Flow (vph)	0	604	0	0	825	0	0	1000	0	0	0	0
Turn Type	Perm						Perm					
Protected Phases		2			6			8				
Permitted Phases	2						8					
Actuated Green, G (s)		42.0			42.0			50.0				
Effective Green, g (s)		42.0			42.0			50.0				
Actuated g/C Ratio		0.42			0.42			0.50				
Clearance Time (s)		4.0			4.0			4.0				
Lane Grp Cap (vph)		1371			1461			1666				
v/s Ratio Prot					c0.24							
v/s Ratio Perm		0.19						0.32				
v/c Ratio		0.44			0.56			0.60				
Uniform Delay, d1		20.6			22.1			17.9				
Progression Factor		0.32			1.00			0.71				
Incremental Delay, d2		0.8			1.6			1.4				
Delay (s)		7.4			23.6			14.1				
Level of Service		A			C			B				
Approach Delay (s)		7.4			23.6			14.1			0.0	
Approach LOS		A			C			B			A	

Intersection Summary			
HCM Average Control Delay	15.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	61.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Bend Central Area Plan
Greenwood Avenue @ 3rd Street

2030 CAP with Added Trip Reductions
2nd Highest Hour in Peak Period

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.98		1.00	0.95		1.00	0.97		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3463		1770	3365		1770	3435		1770	3482	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3463		1770	3365		1770	3435		1770	3482	
Volume (vph)	400	980	165	405	775	380	165	1355	330	515	1320	160
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor (vph)	92%	92%	92%	92%	92%	92%	92%	92%	92%	92%	92%	92%
Adj. Flow (vph)	400	980	165	405	775	380	165	1355	330	515	1320	160
RTOR Reduction (vph)	0	10	0	0	43	0	0	15	0	0	6	0
Lane Group Flow (vph)	400	1135	0	405	1112	0	165	1670	0	515	1474	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases												
Actuated Green, G (s)	19.0	34.0		19.0	34.0		12.0	47.0		24.0	59.0	
Effective Green, g (s)	19.0	34.0		19.0	34.0		12.0	47.0		24.0	59.0	
Actuated g/C Ratio	0.14	0.24		0.14	0.24		0.09	0.34		0.17	0.42	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	2.5	2.5		2.5	2.5		2.5	4.3		2.5	4.3	
Lane Grp Cap (vph)	240	841		240	817		152	1153		303	1467	
v/s Ratio Prot	0.23	0.33		c0.23	c0.34		0.09	c0.49		c0.29	0.43	
v/s Ratio Perm												
v/c Ratio	1.67	1.35		1.69	1.36		1.09	1.45		1.70	1.00	
Uniform Delay, d1	60.5	53.0		60.5	53.0		64.0	46.5		58.0	40.5	
Progression Factor	1.00	1.00		1.00	1.00		0.73	1.05		0.87	1.14	
Incremental Delay, d2	317.7	165.3		326.8	170.3		80.7	204.6		316.1	8.2	
Delay (s)	378.2	218.3		387.3	223.3		127.3	253.2		366.5	54.5	
Level of Service	F	F		F	F		F	F		F	D	
Approach Delay (s)		259.7			265.9			242.0			135.0	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM Average Control Delay	220.6	HCM Level of Service	F
HCM Volume to Capacity ratio	1.53		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	135.0%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0						4.0	
Lane Util. Factor		1.00			1.00						0.95	
Frt		0.93			1.00						1.00	
Flt Protected		1.00			0.96						0.99	
Satd. Flow (prot)		1503			1551						3206	
Flt Permitted		1.00			0.74						0.99	
Satd. Flow (perm)		1503			1200						3206	
Volume (vph)	0	25	25	235	70	0	0	0	0	170	1030	25
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor (vph)	84%	84%	84%	84%	84%	84%	84%	84%	84%	84%	84%	84%
Adj. Flow (vph)	0	23	23	215	64	0	0	0	0	155	940	23
RTOR Reduction (vph)	0	14	0	0	0	0	0	0	0	0	1	0
Lane Group Flow (vph)	0	32	0	0	279	0	0	0	0	0	1117	0
Parking (#/hr)	7	7	7	7	7	7				14	14	14
Turn Type				Perm						Perm		
Protected Phases		2			6						4	
Permitted Phases				6						4		
Actuated Green, G (s)		41.0			41.0						51.0	
Effective Green, g (s)		41.0			41.0						51.0	
Actuated g/C Ratio		0.41			0.41						0.51	
Clearance Time (s)		4.0			4.0						4.0	
Lane Grp Cap (vph)		616			492						1635	
v/s Ratio Prot		0.03										
v/s Ratio Perm					c0.23						0.35	
v/c Ratio		0.05			0.57						0.68	
Uniform Delay, d1		17.8			22.7						18.4	
Progression Factor		1.00			0.81						0.45	
Incremental Delay, d2		0.2			4.0						1.5	
Delay (s)		18.0			22.4						9.9	
Level of Service		B			C						A	
Approach Delay (s)		18.0			22.4			0.0			9.9	
Approach LOS		B			C			A			A	

Intersection Summary			
HCM Average Control Delay	12.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	56.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0				
Lane Util. Factor		1.00			1.00			0.95				
Frt		1.00			0.92			0.98				
Flt Protected		0.98			1.00			0.99				
Satd. Flow (prot)		1817			1707			3447				
Flt Permitted		0.67			1.00			0.99				
Satd. Flow (perm)		1247			1707			3447				
Volume (vph)	100	100	0	0	125	205	190	905	155	0	0	0
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor (vph)	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%
Adj. Flow (vph)	87	87	0	0	109	178	165	787	135	0	0	0
RTOR Reduction (vph)	0	0	0	0	59	0	0	11	0	0	0	0
Lane Group Flow (vph)	0	174	0	0	228	0	0	1076	0	0	0	0
Turn Type	Perm						Perm					
Protected Phases		2			6			8				
Permitted Phases	2						8					
Actuated Green, G (s)		37.4			37.4			54.6				
Effective Green, g (s)		37.4			37.4			54.6				
Actuated g/C Ratio		0.37			0.37			0.55				
Clearance Time (s)		4.0			4.0			4.0				
Lane Grp Cap (vph)		466			638			1882				
v/s Ratio Prot					c0.17							
v/s Ratio Perm		0.14						0.32				
v/c Ratio		0.37			0.36			0.57				
Uniform Delay, d1		22.8			22.6			15.0				
Progression Factor		1.62			1.00			0.20				
Incremental Delay, d2		1.8			1.6			0.9				
Delay (s)		38.8			24.2			3.9				
Level of Service		D			C			A				
Approach Delay (s)		38.8			24.2			3.9			0.0	
Approach LOS		D			C			A			A	

Intersection Summary			
HCM Average Control Delay	11.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	62.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Bend Central Area Plan
Franklin Avenue @ Wall Street

2030 CAP with Added Trip Reductions
2nd Highest Hour in Peak Period

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0						4.0	4.0
Lane Util. Factor		1.00		1.00	1.00						0.95	1.00
Frt		0.99		1.00	1.00						1.00	0.85
Flt Protected		1.00		0.95	1.00						0.99	1.00
Satd. Flow (prot)		1846		1770	1863						3487	1583
Flt Permitted		1.00		0.20	1.00						0.99	1.00
Satd. Flow (perm)		1846		380	1863						3487	1583
Volume (vph)	0	575	40	315	485	0	0	0	0	255	600	355
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor (vph)	84%	84%	84%	84%	84%	84%	84%	84%	84%	84%	84%	84%
Adj. Flow (vph)	0	525	37	288	443	0	0	0	0	233	548	324
RTOR Reduction (vph)	0	2	0	0	0	0	0	0	0	0	0	224
Lane Group Flow (vph)	0	560	0	288	443	0	0	0	0	0	781	100
Turn Type				pm+pt						Perm		Perm
Protected Phases		8		7	4						6	
Permitted Phases				4						6		6
Actuated Green, G (s)		43.0		61.0	61.0						31.0	31.0
Effective Green, g (s)		43.0		61.0	61.0						31.0	31.0
Actuated g/C Ratio		0.43		0.61	0.61						0.31	0.31
Clearance Time (s)		4.0		4.0	4.0						4.0	4.0
Lane Grp Cap (vph)		794		426	1136						1081	491
v/s Ratio Prot		0.30		c0.09	0.24							
v/s Ratio Perm				c0.32							0.22	0.20
v/c Ratio		0.70		0.68	0.39						0.72	0.20
Uniform Delay, d1		23.3		14.2	10.0						30.7	25.4
Progression Factor		1.00		0.65	0.29						0.59	0.63
Incremental Delay, d2		5.2		2.7	0.3						3.2	0.7
Delay (s)		28.5		11.9	3.2						21.3	16.6
Level of Service		C		B	A						C	B
Approach Delay (s)		28.5			6.7			0.0			19.9	
Approach LOS		C			A			A			B	

Intersection Summary			
HCM Average Control Delay	17.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	90.1%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0		4.0	4.0			
Lane Util. Factor	1.00	0.95			1.00	1.00		0.95	1.00			
Frt	1.00	1.00			1.00	0.85		1.00	0.85			
Flt Protected	0.95	1.00			1.00	1.00		0.99	1.00			
Satd. Flow (prot)	1770	3539			1863	1583		3521	1583			
Flt Permitted	0.16	1.00			1.00	1.00		0.99	1.00			
Satd. Flow (perm)	307	3539			1863	1583		3521	1583			
Volume (vph)	325	500	0	0	700	120	95	815	385	0	0	0
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor (vph)	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%
Adj. Flow (vph)	283	435	0	0	609	104	83	709	335	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	13	0	0	241	0	0	0
Lane Group Flow (vph)	283	435	0	0	609	91	0	792	94	0	0	0
Turn Type	pm+pt					custom	Perm		Perm			
Protected Phases	3	8			4			2				
Permitted Phases	8					8	2		2			
Actuated Green, G (s)	64.0	64.0			43.0	64.0		28.0	28.0			
Effective Green, g (s)	64.0	64.0			43.0	64.0		28.0	28.0			
Actuated g/C Ratio	0.64	0.64			0.43	0.64		0.28	0.28			
Clearance Time (s)	4.0	4.0			4.0	4.0		4.0	4.0			
Lane Grp Cap (vph)	445	2265			801	1013		986	443			
v/s Ratio Prot	c0.11	0.12			c0.33							
v/s Ratio Perm	0.30					0.07		0.22	0.21			
v/c Ratio	0.64	0.19			0.76	0.09		0.80	0.21			
Uniform Delay, d1	14.2	7.4			24.1	6.9		33.4	27.6			
Progression Factor	1.51	2.00			1.00	1.00		0.73	1.00			
Incremental Delay, d2	4.7	0.1			6.7	0.2		5.9	0.9			
Delay (s)	26.2	14.9			30.8	7.1		30.2	28.6			
Level of Service	C	B			C	A		C	C			
Approach Delay (s)		19.4			27.4			29.7			0.0	
Approach LOS		B			C			C			A	

Intersection Summary			
HCM Average Control Delay	26.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	74.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	0.98		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3460		1770	3518		1770	3486	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3460		1770	3518		1770	3486	
Volume (vph)	370	705	165	200	455	80	200	1320	55	145	1445	160
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor (vph)	92%	92%	92%	92%	92%	92%	92%	92%	92%	92%	92%	92%
Adj. Flow (vph)	370	705	165	200	455	80	200	1320	55	145	1445	160
RTOR Reduction (vph)	0	0	126	0	10	0	0	2	0	0	6	0
Lane Group Flow (vph)	370	705	39	200	525	0	200	1373	0	145	1599	0
Turn Type	Prot		Perm	Prot			Prot			Prot		
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases			4									
Actuated Green, G (s)	27.0	33.0	33.0	16.0	22.0		15.0	63.0		12.0	60.0	
Effective Green, g (s)	27.0	33.0	33.0	16.0	22.0		15.0	63.0		12.0	60.0	
Actuated g/C Ratio	0.19	0.24	0.24	0.11	0.16		0.11	0.45		0.09	0.43	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Lane Grp Cap (vph)	341	834	373	202	544		190	1583		152	1494	
v/s Ratio Prot	c0.21	0.20		0.11	c0.15		c0.11	0.39		0.08	c0.46	
v/s Ratio Perm			0.10									
v/c Ratio	1.09	0.85	0.10	0.99	0.96		1.05	0.87		0.95	1.07	
Uniform Delay, d1	56.5	51.1	41.9	61.9	58.6		62.5	34.7		63.7	40.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		0.70	0.52	
Incremental Delay, d2	73.4	10.3	0.6	60.8	30.8		79.9	6.7		13.4	33.1	
Delay (s)	129.9	61.3	42.5	122.7	89.4		142.4	41.4		58.2	53.9	
Level of Service	F	E	D	F	F		F	D		E	D	
Approach Delay (s)		79.3			98.5			54.2			54.2	
Approach LOS		E			F			D			D	

Intersection Summary			
HCM Average Control Delay	66.2	HCM Level of Service	E
HCM Volume to Capacity ratio	1.06		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	97.7%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Bend Central Area Plan
Colorado Avenue @ Wall Street

2030 CAP with Added Trip Reductions
2nd Highest Hour in Peak Period

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0						4.0	
Lane Util. Factor					0.95						0.95	
Frt					1.00						0.96	
Flt Protected					0.99						1.00	
Satd. Flow (prot)					3287						3177	
Flt Permitted					0.99						1.00	
Satd. Flow (perm)					3287						3177	
Volume (vph)	0	0	0	170	740	0	0	0	0	0	545	215
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor (vph)	84%	84%	84%	84%	84%	84%	84%	84%	84%	84%	84%	84%
Adj. Flow (vph)	0	0	0	155	676	0	0	0	0	0	498	196
RTOR Reduction (vph)	0	0	0	0	20	0	0	0	0	0	42	0
Lane Group Flow (vph)	0	0	0	0	811	0	0	0	0	0	652	0
Parking (#/hr)				5	5					5	5	
Turn Type				Perm								
Protected Phases					6						4	
Permitted Phases				6								
Actuated Green, G (s)					47.9						44.1	
Effective Green, g (s)					47.9						44.1	
Actuated g/C Ratio					0.48						0.44	
Clearance Time (s)					4.0						4.0	
Lane Grp Cap (vph)					1574						1401	
v/s Ratio Prot											c0.22	
v/s Ratio Perm					0.25							
v/c Ratio					0.52						0.47	
Uniform Delay, d1					18.0						19.7	
Progression Factor					0.29						1.37	
Incremental Delay, d2					0.9						0.8	
Delay (s)					6.0						27.7	
Level of Service					A						C	
Approach Delay (s)		0.0			6.0			0.0			27.7	
Approach LOS		A			A			A			C	

Intersection Summary			
HCM Average Control Delay	15.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	46.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Bend Central Area Plan
Colorado Avenue @ Bond Street

2030 CAP with Added Trip Reductions
2nd Highest Hour in Peak Period

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0			4.0				
Lane Util. Factor					0.95			0.95				
Frt					0.96			1.00				
Flt Protected					1.00			0.99				
Satd. Flow (prot)					3149			3256				
Flt Permitted					1.00			0.99				
Satd. Flow (perm)					3149			3256				
Volume (vph)	0	0	0	0	795	270	115	920	0	0	0	0
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor (vph)	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%
Adj. Flow (vph)	0	0	0	0	691	235	100	800	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	33	0	0	10	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	893	0	0	890	0	0	0	0
Parking (#/hr)				10	10	10	10	10	10			
Turn Type							Perm					
Protected Phases					6			8				
Permitted Phases							8					
Actuated Green, G (s)					46.0			46.0				
Effective Green, g (s)					46.0			46.0				
Actuated g/C Ratio					0.46			0.46				
Clearance Time (s)					4.0			4.0				
Lane Grp Cap (vph)					1449			1498				
v/s Ratio Prot					c0.29							
v/s Ratio Perm								0.28				
v/c Ratio					0.62			0.59				
Uniform Delay, d1					20.3			20.1				
Progression Factor					1.00			0.73				
Incremental Delay, d2					2.0			1.3				
Delay (s)					22.3			15.9				
Level of Service					C			B				
Approach Delay (s)		0.0			22.3			15.9			0.0	
Approach LOS		A			C			B			A	

Intersection Summary			
HCM Average Control Delay	19.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	54.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0			4.0	4.0	4.0		4.0
Lane Util. Factor					1.00			1.00	1.00	1.00		1.00
Frt					0.98			1.00	0.85	1.00		0.85
Flt Protected					1.00			1.00	1.00	0.95		1.00
Satd. Flow (prot)					1830			1861	1583	1770		1583
Flt Permitted					1.00			1.00	1.00	0.42		1.00
Satd. Flow (perm)					1830			1861	1583	777		1583
Volume (vph)	0	0	0	5	515	75	5	215	920	130	0	460
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	5	560	82	5	234	1000	141	0	500
RTOR Reduction (vph)	0	0	0	0	4	0	0	0	198	0	0	93
Lane Group Flow (vph)	0	0	0	0	643	0	0	239	802	141	0	407
Turn Type				custom			Split		custom	D.P+P		custom
Protected Phases				8	8		6	6	6 8	2		2
Permitted Phases				8					6 8	6		6
Actuated Green, G (s)					47.6			30.6	82.2	60.4		60.4
Effective Green, g (s)					47.6			30.6	82.2	60.4		60.4
Actuated g/C Ratio					0.40			0.26	0.69	0.50		0.50
Clearance Time (s)					4.0			4.0		4.0		4.0
Vehicle Extension (s)					3.0			3.0		3.0		3.0
Lane Grp Cap (vph)					726			475	1084	638		850
v/s Ratio Prot					0.35			0.13	c0.63	0.05		c0.15
v/s Ratio Perm										0.06		0.17
v/c Ratio					0.89			0.50	0.74	0.22		0.48
Uniform Delay, d1					33.7			38.2	12.1	16.5		19.5
Progression Factor					1.00			1.00	1.00	1.00		1.00
Incremental Delay, d2					12.5			0.8	2.8	0.2		0.4
Delay (s)					46.1			39.0	14.8	16.7		19.9
Level of Service					D			D	B	B		B
Approach Delay (s)		0.0			46.1			19.5			19.2	
Approach LOS		A			D			B			B	

Intersection Summary			
HCM Average Control Delay	26.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	82.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Bend Central Area Plan
Arizona Avenue @ Wall Street

2030 CAP with Added Trip Reductions
2nd Highest Hour in Peak Period

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0									4.0	
Lane Util. Factor		0.95									0.95	
Frt		1.00									1.00	
Flt Protected		1.00									0.98	
Satd. Flow (prot)		3304									3213	
Flt Permitted		1.00									0.98	
Satd. Flow (perm)		3304									3213	
Volume (vph)	0	1230	35	0	0	0	0	0	0	270	445	0
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor (vph)	84%	84%	84%	84%	84%	84%	84%	84%	84%	84%	84%	84%
Adj. Flow (vph)	0	1123	32	0	0	0	0	0	0	247	406	0
RTOR Reduction (vph)	0	2	0	0	0	0	0	0	0	0	42	0
Lane Group Flow (vph)	0	1153	0	0	0	0	0	0	0	0	611	0
Parking (#/hr)		5	5							10	10	10
Turn Type										Perm		
Protected Phases		2									4	
Permitted Phases										4		
Actuated Green, G (s)		54.1									37.9	
Effective Green, g (s)		54.1									37.9	
Actuated g/C Ratio		0.54									0.38	
Clearance Time (s)		4.0									4.0	
Lane Grp Cap (vph)		1787									1218	
v/s Ratio Prot		c0.35										
v/s Ratio Perm											0.20	
v/c Ratio		0.65									0.50	
Uniform Delay, d1		16.2									23.8	
Progression Factor		0.66									0.37	
Incremental Delay, d2		1.7									1.3	
Delay (s)		12.4									10.1	
Level of Service		B									B	
Approach Delay (s)		12.4			0.0			0.0			10.1	
Approach LOS		B			A			A			B	

Intersection Summary			
HCM Average Control Delay	11.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	53.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Bend Central Area Plan
Arizona Avenue @ Bond Street

2030 CAP with Added Trip Reductions
2nd Highest Hour in Peak Period

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0						4.0				
Lane Util. Factor		0.95						0.95				
Frt		1.00						0.96				
Flt Protected		0.98						1.00				
Satd. Flow (prot)		3219						3137				
Flt Permitted		0.98						1.00				
Satd. Flow (perm)		3219						3137				
Volume (vph)	515	1000	0	0	0	0	0	520	200	0	0	0
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor (vph)	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%
Adj. Flow (vph)	448	870	0	0	0	0	0	452	174	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	41	0	0	0	0
Lane Group Flow (vph)	0	1318	0	0	0	0	0	585	0	0	0	0
Parking (#/hr)	10	10	10				10	10	10			
Turn Type	Perm						Perm					
Protected Phases		2						8				
Permitted Phases	2						8					
Actuated Green, G (s)		61.0						31.0				
Effective Green, g (s)		61.0						31.0				
Actuated g/C Ratio		0.61						0.31				
Clearance Time (s)		4.0						4.0				
Lane Grp Cap (vph)		1964						972				
v/s Ratio Prot								c0.20				
v/s Ratio Perm		0.41										
v/c Ratio		0.67						0.60				
Uniform Delay, d1		12.9						29.3				
Progression Factor		0.42						1.00				
Incremental Delay, d2		1.4						2.8				
Delay (s)		6.8						32.0				
Level of Service		A						C				
Approach Delay (s)		6.8			0.0			32.0			0.0	
Approach LOS		A			A			C			A	

Intersection Summary			
HCM Average Control Delay	14.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	57.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

APPENDIX E

2030 Central Area Plan Intersection Mitigation Worksheets

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	3433	1863	1583	1770	4988		1770	5044	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1863	1583	3433	1863	1583	1770	4988		1770	5044	
Volume (vph)	150	220	250	620	215	300	250	1600	235	280	1935	110
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	163	239	272	674	234	326	272	1739	255	304	2103	120
RTOR Reduction (vph)	0	0	2	0	0	27	0	15	0	0	5	0
Lane Group Flow (vph)	163	239	270	674	234	299	272	1979	0	304	2218	0
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot			Prot		
Protected Phases	3	8	1	7	4	5	1	6		5	2	
Permitted Phases			8			4						
Actuated Green, G (s)	15.0	16.0	35.5	24.0	25.0	46.5	19.5	52.0		21.5	54.0	
Effective Green, g (s)	15.0	16.0	35.0	24.0	25.0	46.0	19.0	53.0		21.0	55.0	
Actuated g/C Ratio	0.12	0.12	0.27	0.18	0.19	0.35	0.15	0.41		0.16	0.42	
Clearance Time (s)	4.0	4.0	3.5	4.0	4.0	3.5	3.5	5.0		3.5	5.0	
Lane Grp Cap (vph)	204	229	475	634	358	560	259	2034		286	2134	
v/s Ratio Prot	0.09	c0.13	0.08	c0.20	0.13	0.09	0.15	c0.40		0.17	c0.44	
v/s Ratio Perm			0.09			0.11						
v/c Ratio	0.80	1.04	0.57	1.06	0.65	0.53	1.05	0.97		1.06	1.04	
Uniform Delay, d1	56.0	57.0	41.0	53.0	48.5	33.5	55.5	37.8		54.5	37.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	27.0	71.4	4.9	53.7	9.0	3.6	69.7	14.5		70.8	30.7	
Delay (s)	83.0	128.4	45.8	106.7	57.5	37.1	125.2	52.3		125.3	68.2	
Level of Service	F	F	D	F	E	D	F	D		F	E	
Approach Delay (s)		84.1			79.0			61.1			75.0	
Approach LOS		F			E			E			E	

Intersection Summary			
HCM Average Control Delay	72.0	HCM Level of Service	E
HCM Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	96.3%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0			4.0	4.0	4.0	4.0	4.0
Lane Util. Factor		0.95	1.00		0.95			1.00	0.88	1.00	1.00	1.00
Frt		1.00	0.85		0.97			1.00	0.85	1.00	1.00	0.85
Flt Protected		0.99	1.00		1.00			0.99	1.00	0.95	1.00	1.00
Satd. Flow (prot)		3488	1583		3433			1835	2787	1770	1863	1583
Flt Permitted		0.53	1.00		0.86			0.90	1.00	0.23	1.00	1.00
Satd. Flow (perm)		1877	1583		2966			1675	2787	420	1863	1583
Volume (vph)	190	460	585	60	680	160	160	370	600	160	5	380
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	207	500	636	65	739	174	174	402	652	174	5	413
RTOR Reduction (vph)	0	0	347	0	28	0	0	0	257	0	0	70
Lane Group Flow (vph)	0	707	289	0	950	0	0	576	395	174	5	343
Turn Type	Perm		Perm	Perm			Perm		Perm	Perm		Perm
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6			8		8	4		4
Actuated Green, G (s)		29.5	29.5		29.5			27.5	27.5	27.5	27.5	27.5
Effective Green, g (s)		29.5	29.5		29.5			27.5	27.5	27.5	27.5	27.5
Actuated g/C Ratio		0.45	0.45		0.45			0.42	0.42	0.42	0.42	0.42
Clearance Time (s)		4.0	4.0		4.0			4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)		2.5	2.5		2.5			2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)		852	718		1346			709	1179	178	788	670
v/s Ratio Prot											0.00	
v/s Ratio Perm		0.38	0.40		0.33			0.34	0.23	c0.41		0.26
v/c Ratio		1.30dl	0.40		0.71			0.81	0.33	0.98	0.01	0.51
Uniform Delay, d1		15.6	11.9		14.3			16.5	12.6	18.4	10.8	13.8
Progression Factor		1.00	1.00		1.59			1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		9.2	1.7		0.9			6.7	0.1	60.0	0.0	0.3
Delay (s)		24.7	13.5		23.6			23.2	12.7	78.5	10.8	14.1
Level of Service		C	B		C			C	B	E	B	B
Approach Delay (s)		19.4			23.6			17.6			33.0	
Approach LOS		B			C			B			C	

Intersection Summary			
HCM Average Control Delay	21.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	94.4%	ICU Level of Service	F
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.
c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	0.97	0.95	1.00	0.86	0.86		0.97	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.98		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3433	3539	1583	3044	3137		3433	5017		1770	5026	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	3433	3539	1583	3044	3137		3433	5017		1770	5026	
Volume (vph)	280	605	295	375	560	90	225	1765	175	110	1245	105
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	304	658	321	408	609	98	245	1918	190	120	1353	114
RTOR Reduction (vph)	0	0	16	0	8	0	0	9	0	0	7	0
Lane Group Flow (vph)	304	658	305	408	699	0	245	2099	0	120	1460	0
Turn Type	Prot		pm+ov	Prot			Prot			Prot		
Protected Phases	7	4	5	3	8		5	2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	15.8	30.2	42.2	20.7	35.1		12.0	53.9		9.2	51.1	
Effective Green, g (s)	15.8	30.2	42.2	20.7	35.1		12.0	53.9		9.2	51.1	
Actuated g/C Ratio	0.12	0.23	0.32	0.16	0.27		0.09	0.41		0.07	0.39	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	2.5	2.5	2.5	2.5	2.5		2.5	4.3		2.5	4.3	
Lane Grp Cap (vph)	417	822	514	485	847		317	2080		125	1976	
v/s Ratio Prot	0.09	0.19	0.06	c0.13	c0.23		0.07	c0.42		c0.07	0.29	
v/s Ratio Perm			0.15									
v/c Ratio	0.73	0.80	0.59	0.84	0.83		0.77	1.01		0.96	0.74	
Uniform Delay, d1	55.0	47.1	36.7	53.1	44.6		57.7	38.0		60.2	33.7	
Progression Factor	1.01	0.99	0.97	1.00	1.00		0.87	0.79		1.00	1.00	
Incremental Delay, d2	4.6	4.2	1.2	12.3	6.5		3.3	12.9		67.2	2.5	
Delay (s)	60.0	50.6	36.8	65.3	51.0		53.2	43.0		127.4	36.3	
Level of Service	E	D	D	E	D		D	D		F	D	
Approach Delay (s)		49.4			56.3			44.1			43.2	
Approach LOS		D			E			D			D	

Intersection Summary			
HCM Average Control Delay	47.1	HCM Level of Service	D
HCM Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	90.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	1.00	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	5024		1770	5068	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1863	1583	1770	1863	1583	1770	5024		1770	5068	
Volume (vph)	175	395	155	190	390	130	150	1880	165	200	1700	40
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	190	429	168	207	424	141	163	2043	179	217	1848	43
RTOR Reduction (vph)	0	0	119	0	0	101	0	8	0	0	2	0
Lane Group Flow (vph)	190	429	49	207	424	40	163	2214	0	217	1889	0
Turn Type	Prot		Perm	Prot		Perm	Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8						
Actuated Green, G (s)	13.5	28.0	28.0	14.5	29.0	29.0	17.9	56.0		15.5	53.6	
Effective Green, g (s)	13.0	28.0	28.0	14.0	29.0	29.0	17.4	57.0		15.0	54.6	
Actuated g/C Ratio	0.10	0.22	0.22	0.11	0.22	0.22	0.13	0.44		0.12	0.42	
Clearance Time (s)	3.5	4.0	4.0	3.5	4.0	4.0	3.5	5.0		3.5	5.0	
Vehicle Extension (s)	2.5	2.5	2.5	2.5	2.5	2.5	2.5	4.8		2.5	4.8	
Lane Grp Cap (vph)	177	401	341	191	416	353	237	2203		204	2129	
v/s Ratio Prot	0.11	c0.23		c0.12	0.23		0.09	c0.44		c0.12	0.37	
v/s Ratio Perm			0.11			0.09						
v/c Ratio	1.07	1.07	0.14	1.08	1.02	0.11	0.69	1.01		1.06	0.89	
Uniform Delay, d1	58.5	51.0	41.3	58.0	50.5	40.3	53.7	36.5		57.5	34.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		0.98	0.67	
Incremental Delay, d2	88.5	64.8	0.1	89.2	49.1	0.1	7.4	20.4		70.0	4.2	
Delay (s)	147.0	115.8	41.4	147.2	99.6	40.4	61.1	56.9		126.5	27.7	
Level of Service	F	F	D	F	F	D	E	E		F	C	
Approach Delay (s)		107.5			101.5			57.2			37.8	
Approach LOS		F			F			E			D	

Intersection Summary			
HCM Average Control Delay	62.6	HCM Level of Service	E
HCM Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	95.7%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	1770	5085	1583	3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	1770	5085	1583	3433	5085	1583
Volume (vph)	250	980	165	405	675	380	115	1355	330	515	1320	160
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	272	1065	179	440	734	413	125	1473	359	560	1435	174
RTOR Reduction (vph)	0	0	2	0	0	5	0	0	3	0	0	44
Lane Group Flow (vph)	272	1065	177	440	734	408	125	1473	356	560	1435	130
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	7	4	1	3	8	5	1	6	3	5	2	7
Permitted Phases			4			8			6			2
Actuated Green, G (s)	17.3	31.0	44.2	13.0	26.7	43.7	13.2	33.0	46.0	17.0	36.8	54.1
Effective Green, g (s)	17.3	31.0	44.2	13.0	26.7	43.7	13.2	33.0	46.0	17.0	36.8	54.1
Actuated g/C Ratio	0.16	0.28	0.40	0.12	0.24	0.40	0.12	0.30	0.42	0.15	0.33	0.49
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	2.5	2.5	2.5	2.5	2.5	2.5	2.5	4.3	2.5	2.5	4.3	2.5
Lane Grp Cap (vph)	540	997	694	406	859	686	212	1526	720	531	1701	836
v/s Ratio Prot	0.08	c0.30	0.03	c0.13	0.21	0.09	0.07	c0.29	0.06	c0.16	0.28	0.03
v/s Ratio Perm			0.08			0.17			0.17			0.08
v/c Ratio	0.50	1.07	0.25	1.08	0.85	0.60	0.59	0.97	0.49	1.05	0.84	0.16
Uniform Delay, d1	42.4	39.5	21.9	48.5	39.8	26.2	45.8	37.9	23.5	46.5	33.9	15.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.5	48.6	0.1	69.0	8.2	1.2	3.4	15.6	0.4	54.2	5.3	0.1
Delay (s)	43.0	88.1	22.1	117.5	48.0	27.3	49.3	53.5	23.9	100.7	39.2	15.4
Level of Service	D	F	C	F	D	C	D	D	C	F	D	B
Approach Delay (s)		72.2			61.9			47.8			53.2	
Approach LOS		E			E			D			D	

Intersection Summary			
HCM Average Control Delay	57.6	HCM Level of Service	E
HCM Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	92.8%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	0.98		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3433	3539	1583	3433	3452		1770	3519		1770	3486	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	3433	3539	1583	3433	3452		1770	3519		1770	3486	
Volume (vph)	270	655	215	200	405	80	150	1370	55	145	1445	160
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	293	712	234	217	440	87	163	1489	60	158	1571	174
RTOR Reduction (vph)	0	0	137	0	14	0	0	2	0	0	7	0
Lane Group Flow (vph)	293	712	97	217	513	0	163	1547	0	158	1738	0
Turn Type	Prot		Perm	Prot			Prot			Prot		
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases			4									
Actuated Green, G (s)	10.0	24.0	24.0	8.0	22.0		11.0	61.0		11.0	61.0	
Effective Green, g (s)	10.0	24.0	24.0	8.0	22.0		11.0	61.0		11.0	61.0	
Actuated g/C Ratio	0.08	0.20	0.20	0.07	0.18		0.09	0.51		0.09	0.51	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Lane Grp Cap (vph)	286	708	317	229	633		162	1789		162	1772	
v/s Ratio Prot	0.09	c0.20		0.06	c0.15		c0.09	0.44		0.09	c0.50	
v/s Ratio Perm			0.15									
v/c Ratio	1.02	1.01	0.31	0.95	0.81		1.01	0.86		0.98	0.98	
Uniform Delay, d1	55.0	48.0	40.9	55.8	47.0		54.5	25.9		54.4	28.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	59.7	35.2	2.5	47.3	10.8		72.3	5.9		64.5	17.3	
Delay (s)	114.7	83.2	43.4	103.1	57.8		126.8	31.7		118.9	46.2	
Level of Service	F	F	D	F	E		F	C		F	D	
Approach Delay (s)		83.1			71.0			40.8			52.3	
Approach LOS		F			E			D			D	

Intersection Summary			
HCM Average Control Delay	58.1	HCM Level of Service	E
HCM Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	90.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		↰↰	↱
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0
Lane Util. Factor		1.00	1.00		0.97	1.00
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		1863	1863		3433	1583
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		1863	1863		3433	1583
Volume (vph)	0	730	885	0	495	250
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	793	962	0	538	272
RTOR Reduction (vph)	0	0	0	0	0	32
Lane Group Flow (vph)	0	793	962	0	538	240
Turn Type						Perm
Protected Phases		4	8		6	
Permitted Phases						6
Actuated Green, G (s)		41.1	41.1		15.9	15.9
Effective Green, g (s)		41.1	41.1		15.9	15.9
Actuated g/C Ratio		0.63	0.63		0.24	0.24
Clearance Time (s)		4.0	4.0		4.0	4.0
Vehicle Extension (s)		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)		1178	1178		840	387
v/s Ratio Prot		0.43	c0.52		0.16	
v/s Ratio Perm						0.17
v/c Ratio		0.67	0.82		0.64	0.62
Uniform Delay, d1		7.7	9.1		22.0	21.9
Progression Factor		0.74	1.00		1.00	1.00
Incremental Delay, d2		0.1	4.5		3.7	7.2
Delay (s)		5.8	13.6		25.7	29.1
Level of Service		A	B		C	C
Approach Delay (s)		5.8	13.6		26.9	
Approach LOS		A	B		C	

Intersection Summary			
HCM Average Control Delay	15.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	68.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0				
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00				
Frt	1.00	1.00		1.00	0.96			0.93				
Flt Protected	0.95	1.00		0.95	1.00			0.98				
Satd. Flow (prot)	1770	1859		1770	1790			1694				
Flt Permitted	0.14	1.00		0.16	1.00			0.98				
Satd. Flow (perm)	261	1859		302	1790			1694				
Volume (vph)	110	1100	15	10	860	305	25	5	35	0	0	0
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	120	1196	16	11	935	332	27	5	38	0	0	0
RTOR Reduction (vph)	0	0	0	0	8	0	0	35	0	0	0	0
Lane Group Flow (vph)	120	1212	0	11	1259	0	0	35	0	0	0	0
Turn Type	Perm			Perm			Perm					
Protected Phases		4			8			2				
Permitted Phases	4			8			2					
Actuated Green, G (s)	84.1	84.1		84.1	84.1			7.9				
Effective Green, g (s)	84.1	84.1		84.1	84.1			7.9				
Actuated g/C Ratio	0.84	0.84		0.84	0.84			0.08				
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0				
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0				
Lane Grp Cap (vph)	220	1563		254	1505			134				
v/s Ratio Prot		0.65			c0.71							
v/s Ratio Perm	0.46			0.04				0.04				
v/c Ratio	0.55	0.78		0.04	0.84			0.26				
Uniform Delay, d1	2.3	3.6		1.3	4.3			43.3				
Progression Factor	1.00	1.00		1.00	1.00			1.00				
Incremental Delay, d2	2.8	2.5		0.1	4.2			4.7				
Delay (s)	5.1	6.1		1.4	8.5			48.0				
Level of Service	A	A		A	A			D				
Approach Delay (s)		6.0			8.4			48.0			0.0	
Approach LOS		A			A			D			A	

Intersection Summary			
HCM Average Control Delay	8.3	HCM Level of Service	A
HCM Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	83.7%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0		4.0	4.0			4.0	
Lane Util. Factor		1.00	1.00	1.00	1.00		1.00	1.00			1.00	
Frt		1.00	0.85	1.00	1.00		1.00	0.85			0.91	
Flt Protected		1.00	1.00	0.95	1.00		0.95	1.00			1.00	
Satd. Flow (prot)		1863	1583	1770	1863		1770	1583			1689	
Flt Permitted		1.00	1.00	0.95	1.00		0.71	1.00			1.00	
Satd. Flow (perm)		1863	1583	1770	1863		1324	1583			1689	
Volume (vph)	0	880	255	130	790	0	340	0	95	0	20	45
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	957	277	141	859	0	370	0	103	0	22	49
RTOR Reduction (vph)	0	0	115	0	0	0	0	73	0	0	35	0
Lane Group Flow (vph)	0	957	162	141	859	0	370	30	0	0	36	0
Turn Type	Perm		Perm	Prot			Perm			Perm		
Protected Phases		4		3	8			2			6	
Permitted Phases	4		4				2			6		
Actuated Green, G (s)		51.0	51.0	8.0	63.0		28.9	28.9			28.9	
Effective Green, g (s)		51.0	51.0	8.0	63.0		28.9	28.9			28.9	
Actuated g/C Ratio		0.51	0.51	0.08	0.63		0.29	0.29			0.29	
Clearance Time (s)		4.0	4.0	4.0	4.0		4.0	4.0			4.0	
Vehicle Extension (s)		3.0	3.0	3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)		951	808	142	1175		383	458			489	
v/s Ratio Prot		c0.51		c0.08	0.46			0.07			0.04	
v/s Ratio Perm			0.17				c0.28					
v/c Ratio		1.01	0.20	0.99	0.73		0.97	0.07			0.07	
Uniform Delay, d1		24.5	13.3	45.9	12.6		35.0	25.7			25.8	
Progression Factor		1.00	1.00	1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2		30.7	0.1	73.1	2.4		36.8	0.1			0.1	
Delay (s)		55.2	13.5	119.0	15.0		71.8	25.8			25.8	
Level of Service		E	B	F	B		E	C			C	
Approach Delay (s)		45.8			29.7			61.8			25.8	
Approach LOS		D			C			E			C	

Intersection Summary			
HCM Average Control Delay	42.2	HCM Level of Service	D
HCM Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	99.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	89.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0	4.0	4.0	4.0	
Lane Util. Factor		1.00			1.00			1.00	1.00	1.00	1.00	
Frt		0.96			0.98			1.00	0.85	1.00	1.00	
Flt Protected		0.99			0.96			1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1762			1756			1862	1583	1770	1863	
Flt Permitted		0.86			0.73			0.95	1.00	0.33	1.00	
Satd. Flow (perm)		1544			1334			1771	1583	620	1863	
Volume (vph)	15	20	15	405	25	70	5	435	335	100	655	0
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	16	22	16	440	27	76	5	473	364	109	712	0
RTOR Reduction (vph)	0	9	0	0	10	0	0	0	209	0	0	0
Lane Group Flow (vph)	0	45	0	0	533	0	0	478	155	109	712	0
Turn Type	Perm			Perm			Perm		Perm	Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)		24.2			24.2			23.8	23.8	23.8	23.8	
Effective Green, g (s)		24.2			24.2			23.8	23.8	23.8	23.8	
Actuated g/C Ratio		0.43			0.43			0.43	0.43	0.43	0.43	
Clearance Time (s)		4.0			4.0			4.0	4.0	4.0	4.0	
Vehicle Extension (s)		3.0			3.0			3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		667			576			753	673	264	792	
v/s Ratio Prot											c0.38	
v/s Ratio Perm		0.03			c0.41			0.27	0.23	0.18		
v/c Ratio		0.07			0.93			0.63	0.23	0.41	0.90	
Uniform Delay, d1		9.3			15.1			12.7	10.3	11.2	15.0	
Progression Factor		1.00			1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.0			20.9			1.8	0.2	1.1	13.0	
Delay (s)		9.3			36.0			14.4	10.4	12.3	27.9	
Level of Service		A			D			B	B	B	C	
Approach Delay (s)		9.3			36.0			12.7			25.9	
Approach LOS		A			D			B			C	

Intersection Summary			
HCM Average Control Delay	23.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	56.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	102.3%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Bend Central Area Plan
Revere Avenue @ 4th Street

2030 CAP with Added Trip Reductions
Highest Peak - with Dual EB Lefts and N/S Lefts

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.97		1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	1863	1583	1770	1805		1770	1819		1770	1863	1583
Flt Permitted	0.19	1.00	1.00	0.35	1.00		0.46	1.00		0.44	1.00	1.00
Satd. Flow (perm)	676	1863	1583	650	1805		854	1819		823	1863	1583
Volume (vph)	315	410	165	30	445	115	105	295	55	270	335	475
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	342	446	179	33	484	125	114	321	60	293	364	516
RTOR Reduction (vph)	0	0	105	0	18	0	0	10	0	0	0	169
Lane Group Flow (vph)	342	446	74	33	591	0	114	371	0	293	364	347
Turn Type	Perm		Perm	Perm			Perm			Perm		Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2			6		6
Actuated Green, G (s)	24.7	24.7	24.7	24.7	24.7		27.3	27.3		27.3	27.3	27.3
Effective Green, g (s)	24.7	24.7	24.7	24.7	24.7		27.3	27.3		27.3	27.3	27.3
Actuated g/C Ratio	0.41	0.41	0.41	0.41	0.41		0.46	0.46		0.46	0.46	0.46
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	278	767	652	268	743		389	828		374	848	720
v/s Ratio Prot		0.24			0.34			0.21			0.20	
v/s Ratio Perm	c0.51		0.11	0.05			0.13			c0.36		0.33
v/c Ratio	1.23	0.58	0.11	0.12	0.80		0.29	0.45		0.78	0.43	0.48
Uniform Delay, d1	17.6	13.7	10.9	10.9	15.4		10.3	11.2		13.8	11.1	11.4
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	131.0	1.1	0.1	0.2	5.9		1.9	1.8		15.1	1.6	2.3
Delay (s)	148.6	14.8	11.0	11.1	21.3		12.2	12.9		28.9	12.7	13.7
Level of Service	F	B	B	B	C		B	B		C	B	B
Approach Delay (s)		61.4			20.8			12.8			17.2	
Approach LOS		E			C			B			B	

Intersection Summary			
HCM Average Control Delay	30.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	86.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Bend Central Area Plan
Olney Avenue @ 4th Street

2030 CAP with Added Trip Reductions
Highest Peak - With Improvements

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Frt	1.00	0.98		1.00	0.99			0.97			0.97	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.98	
Satd. Flow (prot)	1770	1834		1770	1836			1794			1776	
Flt Permitted	0.25	1.00		0.25	1.00			0.90			0.73	
Satd. Flow (perm)	469	1834		469	1836			1628			1310	
Volume (vph)	145	565	65	70	515	55	60	270	95	150	215	110
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	158	614	71	76	560	60	65	293	103	163	234	120
RTOR Reduction (vph)	0	10	0	0	10	0	0	26	0	0	27	0
Lane Group Flow (vph)	158	675	0	76	610	0	0	435	0	0	490	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	15.9	15.9		15.9	15.9			16.1			16.1	
Effective Green, g (s)	15.9	15.9		15.9	15.9			16.1			16.1	
Actuated g/C Ratio	0.40	0.40		0.40	0.40			0.40			0.40	
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	186	729		186	730			655			527	
v/s Ratio Prot		c0.37			0.34							
v/s Ratio Perm	0.34			0.16				0.28			c0.39	
v/c Ratio	0.85	0.93		0.41	0.84			0.66			0.93	
Uniform Delay, d1	11.0	11.5		8.7	10.9			9.7			11.4	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	28.6	17.6		1.5	8.2			5.3			25.2	
Delay (s)	39.5	29.1		10.1	19.1			15.0			36.6	
Level of Service	D	C		B	B			B			D	
Approach Delay (s)		31.0			18.1			15.0			36.6	
Approach LOS		C			B			B			D	

Intersection Summary			
HCM Average Control Delay	25.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	40.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	98.9%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↱		↰		↱			↱
Sign Control		Free			Free		Free	Stop	Free		Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	0	0	0	780	30	80	0	785	0	0	70
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	848	33	87	0	853	0	0	76
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)		563			155							
pX, platoon unblocked												
vC, conflicting volume	880			0			940	880	0	1717	864	864
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	880			0			940	880	0	1717	864	864
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			55	100	21	100	100	78
cM capacity (veh/h)	768			1623			191	286	1085	15	292	354

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total	0	880	87	853	76
Volume Left	0	0	87	0	0
Volume Right	0	33	0	853	76
cSH	1700	1700	191	1085	354
Volume to Capacity	0.00	0.52	0.45	0.79	0.22
Queue Length (ft)	0	0	54	213	20
Control Delay (s)	0.0	0.0	38.6	19.3	17.9
Lane LOS			E	C	C
Approach Delay (s)	0.0	0.0	21.1		17.9
Approach LOS			C		C

Intersection Summary			
Average Delay	11.2		
Intersection Capacity Utilization	61.6%	ICU Level of Service	B
Analysis Period (min)	15		

Bend Central Area Plan
Hawthorne Avenue @ 3rd Street

2030 CAP with Added Trip Reductions
Highest Peak - With Improvements (With widening on 3rd)

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00		1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.97		1.00	1.00		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3261	1676	1425	1593	1621		1770	5067		1770	5033	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	3261	1676	1425	1593	1621		1770	5067		1770	5033	
Volume (vph)	460	180	310	5	195	55	185	1570	40	70	1695	125
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	500	196	337	5	212	60	201	1707	43	76	1842	136
RTOR Reduction (vph)	0	0	151	0	10	0	0	3	0	0	9	0
Lane Group Flow (vph)	500	196	186	5	262	0	201	1747	0	76	1969	0
Parking (#/hr)	0	0	0	0	0	0						
Turn Type	Prot		pt+ov	Prot			Prot			Prot		
Protected Phases	7	4	4 5	3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	16.0	33.9	48.9	1.3	19.2		11.0	43.2		5.6	37.8	
Effective Green, g (s)	16.0	33.9	48.9	1.3	19.2		11.0	43.2		5.6	37.8	
Actuated g/C Ratio	0.16	0.34	0.49	0.01	0.19		0.11	0.43		0.06	0.38	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	522	568	697	21	311		195	2189		99	1902	
v/s Ratio Prot	c0.15	0.12	0.24	0.00	c0.17		c0.11	0.35		0.04	c0.39	
v/s Ratio Perm												
v/c Ratio	0.96	0.35	0.27	0.24	0.84		1.03	0.80		0.77	1.04	
Uniform Delay, d1	41.7	24.7	15.0	48.9	39.0		44.5	24.6		46.6	31.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	28.7	0.4	0.2	5.8	18.4		72.7	3.1		29.3	30.4	
Delay (s)	70.4	25.1	15.2	54.7	57.3		117.2	27.8		75.8	61.5	
Level of Service	E	C	B	D	E		F	C		E	E	
Approach Delay (s)		43.8			57.3			37.0			62.0	
Approach LOS		D			E			D			E	

Intersection Summary			
HCM Average Control Delay	49.0	HCM Level of Service	D
HCM Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	85.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Bend Central Area Plan
Franklin Avenue @ 4th Street

2030 CAP with Added Trip Reductions
Highest Peak - Diversion of Some E/W Traffic to Hawthorne

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Lane Util. Factor	1.00	*0.60		1.00	0.95			1.00			1.00	
Frt	1.00	0.99		1.00	0.99			0.94			0.89	
Flt Protected	0.95	1.00		0.95	1.00			0.99			1.00	
Satd. Flow (prot)	1770	2211		1770	3514			1553			1493	
Flt Permitted	0.42	1.00		0.17	1.00			0.90			0.98	
Satd. Flow (perm)	778	2211		323	3514			1417			1467	
Volume (vph)	80	700	55	25	490	25	30	30	50	15	25	145
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	87	761	60	27	533	27	33	33	54	16	27	158
RTOR Reduction (vph)	0	8	0	0	8	0	0	34	0	0	98	0
Lane Group Flow (vph)	87	813	0	27	552	0	0	86	0	0	103	0
Parking (#/hr)							0	0	0	0	0	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	23.1	23.1		23.1	23.1			18.9			18.9	
Effective Green, g (s)	23.1	23.1		23.1	23.1			18.9			18.9	
Actuated g/C Ratio	0.46	0.46		0.46	0.46			0.38			0.38	
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	359	1021		149	1623			536			555	
v/s Ratio Prot		c0.37			0.16							
v/s Ratio Perm	0.11			0.08				0.08			c0.14	
v/c Ratio	0.24	0.80		0.18	0.34			0.16			0.19	
Uniform Delay, d1	8.1	11.5		7.9	8.6			10.3			10.4	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	0.4	4.4		0.6	0.1			0.6			0.7	
Delay (s)	8.5	15.8		8.5	8.7			10.9			11.1	
Level of Service	A	B		A	A			B			B	
Approach Delay (s)		15.1			8.7			10.9			11.1	
Approach LOS		B			A			B			B	

Intersection Summary			
HCM Average Control Delay	12.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	50.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	48.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Bend Central Area Plan
Tumalo Avenue @ Riverside Drive

2030 CAP with Added Trip Reductions
Highest Peak - With Improvements

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0			4.0			4.0	4.0
Lane Util. Factor	1.00	1.00			1.00			1.00			1.00	1.00
Frt	1.00	0.98			1.00			0.99			1.00	0.85
Flt Protected	0.95	1.00			1.00			0.96			0.98	1.00
Satd. Flow (prot)	1770	1825			1856			1768			1646	1425
Flt Permitted	0.95	1.00			1.00			0.77			0.91	1.00
Satd. Flow (perm)	1770	1825			1856			1421			1523	1425
Volume (vph)	470	315	50	0	350	10	50	5	5	20	35	690
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	511	342	54	0	380	11	54	5	5	22	38	750
RTOR Reduction (vph)	0	8	0	0	2	0	0	4	0	0	0	50
Lane Group Flow (vph)	511	388	0	0	389	0	0	60	0	0	60	700
Parking (#/hr)										0	0	0
Turn Type	Prot			Perm			Perm			Perm		pt+ov
Protected Phases	7	4			8			2			6	6 7
Permitted Phases				8			2			6		
Actuated Green, G (s)	21.6	41.6			16.0			17.0			17.0	42.6
Effective Green, g (s)	21.6	41.6			16.0			17.0			17.0	42.6
Actuated g/C Ratio	0.32	0.62			0.24			0.26			0.26	0.64
Clearance Time (s)	4.0	4.0			4.0			4.0			4.0	
Vehicle Extension (s)	3.0	3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)	574	1140			446			363			389	911
v/s Ratio Prot	0.29	0.22			c0.21							c0.53
v/s Ratio Perm								0.05			0.04	
v/c Ratio	0.89	0.34			0.87			0.17			0.15	0.77
Uniform Delay, d1	21.4	6.0			24.3			19.3			19.2	8.5
Progression Factor	1.00	1.00			1.00			1.00			1.00	1.00
Incremental Delay, d2	15.9	0.2			17.0			0.2			0.2	3.9
Delay (s)	37.2	6.1			41.3			19.5			19.4	12.4
Level of Service	D	A			D			B			B	B
Approach Delay (s)		23.7			41.3			19.5			13.0	
Approach LOS		C			D			B			B	

Intersection Summary			
HCM Average Control Delay	22.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	66.6	Sum of lost time (s)	8.0
Intersection Capacity Utilization	75.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	1863	1863	1583	1770	1583
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	1863	1863	1583	1770	1583
Volume (vph)	835	215	290	645	30	305
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	908	234	315	701	33	332
RTOR Reduction (vph)	0	0	0	203	0	159
Lane Group Flow (vph)	908	234	315	498	33	173
Turn Type	Prot			Perm		pt+ov
Protected Phases	7	4	8		6	6 7
Permitted Phases				8		
Actuated Green, G (s)	27.6	60.4	28.8	28.8	8.2	39.8
Effective Green, g (s)	27.6	60.4	28.8	28.8	8.2	39.8
Actuated g/C Ratio	0.36	0.79	0.38	0.38	0.11	0.52
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	1237	1469	700	595	189	822
v/s Ratio Prot	c0.26	0.13	0.17		0.02	c0.21
v/s Ratio Perm				0.44		
v/c Ratio	0.73	0.16	0.45	0.84	0.17	0.21
Uniform Delay, d1	21.3	2.0	18.0	21.8	31.1	9.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.3	0.1	0.5	10.0	0.4	0.1
Delay (s)	23.6	2.0	18.4	31.7	31.6	10.0
Level of Service	C	A	B	C	C	B
Approach Delay (s)		19.2	27.6		12.0	
Approach LOS		B	C		B	

Intersection Summary			
HCM Average Control Delay	21.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	76.6	Sum of lost time (s)	12.0
Intersection Capacity Utilization	70.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group